

Index

SYMBOLS AND NUMERICS

& (ampersand) EL logical operator, 153

***** (asterisk)

EL multiplication operator, 1080

setProperty action value, 252, 256

***.** (asterisk, period) servlet URL mapping operator, 498

|| (bars) EL logical operator, 153

{ } (braces, curly) `PatternLayout` object token delimiters, 456

[] (brackets, square) EL operator, 162, 163

, (comma)

Appender list separator, 458

class name separator, 218

{ \$ } (dollar sign, curly braces) EL expression delimiters, 45

\$ (dollar sign) JavaScript regular expression operator, 375

== (equals signs) EL comparative operator, 45, 154

!= (exclamation mark, equals sign) EL comparative operator, 45, 154

> (greater than sign) EL comparative operator, 45, 154

>= (greater than sign, equals sign) EL comparative operator, 45, 154

- (hyphen) country code separator, 400

< (less than sign)

action prefix, 242

EL comparative operator, 45, 154

<= (less than sign, equals sign) EL comparative operator, 45, 154

<%@ (less than sign, percent sign, at sign) directive prefix, 214

<%= (less than sign, percent sign, equals sign) scripting

element prefix, 75

<%! (less than sign, percent sign, exclamation mark) scripting element prefix, 75

<% (less than sign, percent sign) scripting element prefix, 78

- (minus sign) EL subtraction operator, 1080

%> (percent sign, greater than sign)

directive suffix, 214

scripting element suffix, 75, 77, 78

. (period) EL operator, 166, 250

+ (plus sign)

EL addition operator, 1080

JavaScript regular expression operator, 375

/ (slash)

EL division operator, 152

JavaScript regular expression delimiter, 375

web.xml file url-pattern element operator, 515

/* (slash, asterisk) URL mapping operator, 498, 515

/d (slash, d) JavaScript regular expression operator, 375

/> (slash, greater than sign) action suffix, 242

_ (underscore) country code separator, 400

A

a HTML tag, 95

abs

EL function, 173, 175

Java method, 175

`AbstractProcessingCommand` class, 795–796

acceptance testing, 888, 891, 930

access control. See authorization

ACID (atomicity, consistency, isolation, and durability), 775–776

action. See also specific action

body, 242

custom, 34, 358–359

described, 34

embedding object using, 242

error handling

include action, 312

setProperty action, 313, 316

syntax error, 309

expression scripting element, using in action

attribute, 77

form HTML tag action attribute, 409

JSF action event, 715, 717

mapping, 596, 619, 630, 636–637, 671–673

parameter within body of other action, specifying, 242

prefix, 242

request

output, including in action, 242

processing, action role in, 34

SimpleController servlet action parameter, 537, 538

standard, 34, 241–242, 1070

syntax, 242, 309, 1060

tag

attribute role in passing value to action, 345

file action, 242

including in action, 242

relation to action, 34, 242

Tiles framework definition, configuring as action

forward, 671–673

validation, invoking with, 595, 596

WebWork action tag, 557

XML, use of, 34–35

Action class, 597, 672

Action Servlet framework, 553

ActionErrors object, 618

ActionForm object, 595, 600

ActionListener interface, 717–718

ActionMappings object, 596

ActionMessages object, 599, 606–607, 618

adaptive development methodology, 886

Add ⇨ Config Element ⇨ HTTP Request Defaults (JMeter), 872

Add ⇨ Listener ⇨ Aggregate Report (JMeter), 865, 871

add Tiles tag, 656

addError method, 565

AddItemAction class, 1005, 1034–1035, 1036

addItemToCart method, 1035

addition (arithmetic), 151, 1080

addList function, 205

addNewTeamToRoster method, 770

addNewVenueToRoster method, 792

addOrIncrementItem method, 1035–1036

addOrModifyObject method, 822

addOrModifyVenue method, 792

Admin ⇨ Login (CVS), 905

Admin ⇨ Preferences ⇨ General (CVS), 905

Advanced Windowing Toolkit (AWT), 742

Agile Manifesto Web site, 887

alias variable directive attribute, 339, 1070

alien artifact, 358–359

AmazonStore class, 956–958

amount method, 710

ampersand (&) EL logical operator, 153

animation, adding to Tiles framework layout, 660, 670, 674, 676–678

Ant compiler

build file

creating, 899

property file, using with, 899

shopping cart application, 1010, 1011–1014

Spring framework, 570–571

structure, 893

Struts framework, 625–626

Web portal build script, 947–949

WebWork framework, 559

CVS, using with, 895–896, 906

downloading, 892

installing, 892–893

javac task, 878–879

JMeter support, 867

JUnit, using with, 893, 902, 914–915

manual, 897

path, 894

precompilation, configuring for, 878

project, 893–894

target, 893, 894, 899–901, 948, 1015

task, 893, 895–897

Web site, 903

Apache Jakarta Project Web site, 13–14, 184

Apache software. See also Ant compiler

Axis, 956–958

Flood, 471, 864

Process Runner, 16

Web server, 8

API (Application Programming Interface). *See also specific API*

JavaBeans API 1.0 Specifications for SUN, 276
 JDBC, 725, 753
 J2EE API overview, 725–727
 servlet API, 8, 17

append **WebWork tag**, 557

Appender, logging, 456, 458, 473

`app_fr.properties` **file**, 417

applet, 268–273, 722, 723

application

development methodology, 886–887
 implicit object, 87, 113, 1064
 JSF, 688, 693, 705–711
 life span, 778, 782
 scalability, 862
 scope, 46, 113, 778, 1061–1062, 1086
 user, involving in application design, 888–889
 version control, 890
 Web application
 deploying, 523–527
 described, 512
 directory structure, 512–513, 898
 e-mail, sending using, 746
 footer element, adding, 530
 header element, adding, 530
 Hibernate, converting to, 792, 800
 integration provided by Web service, 930
 JSP page, adding, 526–527
 MVC implementation, 534–537
 Web site as, 930
 Web framework, 551–552

Application Client container, 722–723

Application Programming Interface. *See API*

`applicationContext.xml` **file**, 567

`application.jsp` **file**, 407, 409, 411, 419–420

`ApplicationResources.properties` **file**, 959

`applicationScope` **object**, 46, 1086

`app.properties` **file**, 416, 417, 418

`app_zh.properties` **file**, 417, 418

`app_zh.ucd` **file**, 418

architectural pattern, 551

arithmetic operator, EL, 151–153, 178, 1080

Array class, 755

array member, accessing in EL, 1079

`ArrayIndexOutOfBoundsException` **exception**, 325

artifact, alien, 358–359

ASCII character format, 418

asterisk (*)

EL multiplication operator, 1080
`setProperty` action value, 252, 256

asterisk, period (*.) servlet URL mapping operator, 498
atomicity, consistency, isolation, and durability (ACID), 775–776

Attach dialog box (NetBeans IDE debugger), 469

attribute. *See also specific attribute*

action, 273
 attached attribute, 86–88, 162–163, 249–252
 directive, 337–338, 346, 1069
 dynamic, 336, 354–355
 EL
 implicit object, attaching attribute to, 86–88, 162–163
 value of attribute, using in, 148, 1078
 fragment attribute, 338, 348, 350, 1069
 insert Tiles tag `attribute` attribute, 653
 JavaBean
 property, relation to, 277
 searching for JavaBean attribute when instantiating, 246–247
 naming, 168
 servlet context attribute, attaching to page during initialization, 85–86
 session attribute, 108, 110, 111–114, 218
 tag
 action, role in passing value to, 345
 dynamic, 336, 354–355
 fragment attribute, 338, 348, 350, 1069
 tag file, 337–338, 345
 XML tag, 34

`attribute_name.property` **EL expression**, 257

auction Web site application

Add Product button, 368, 369
`auction.css` **file**, 294–295
 Bid JavaBean, 292–293, 297
 Bid Now! button, 282, 296
 Bidder JavaBean, 297–298
 BidError JavaBean, 289, 290, 291, 297
 CalculateShipping method, 280
 CSS, formatting output using, 294–295
 Customer JavaBean, 277–280
 Enter Your Bid screen, 281–282
`enterbid.jsp` **file**, 285, 287–288, 289, 290–291, 302
 error handling, 289–290, 291, 297, 368–369
 front controller, 284–288, 299
`getFirstName` method, 278, 280

auction Web site application (continued)

- getMessage method, 290
- index.jsp file, 281, 286–287, 362
- prodprod.jsp file, 255–256, 257, 274, 370–371, 378
- prodform.jsp file, 370–371, 372–374, 380–382
- request forwarding, 285, 287–288, 289, 290–294, 371–372
- setFirstName method, 278
- showbid.jsp file
 - bid result display, 296, 297, 299, 300–301
 - request, forwarding to, 285, 287–288, 289, 290–294, 371–372
- URL, hiding, 285
- validation, 282–283, 393
- winner.jsp file, 302

authentication

- described, 24
- form-based, 827, 843–847, 853, 858
- HTTP
 - basic, 827, 828, 837–842
 - digest, 827
 - session, 826
- key pair-based, 826
- shopping cart application database, 1016
- SSL client certificate authentication, 828, 849–855
- Struts, using, 595–596, 597–599, 600–606, 641
- testing authentication application, 922
- Tomcat server, 24–26, 528–529
- username currently authenticated, returning, 830
- validating user input, 617–619, 641
- Web portal, 944, 952, 959–960, 968–972
- web.xml file configuration, 528, 529, 843

authorization

- container-based, 855
- declarative, 828, 829
- described, 828
- programmatic, 828, 829–830, 855–859
- Realm, 828
- role-based, 828, 830
- time, limiting to specific, 860
- Tomcat server, 15, 828
- web.xml file security-constraint element configuration, 520, 828–829, 838–839

autoFlush

- out object property, 1064
- page directive attribute, 1066

AWT (Advanced Windowing Toolkit), 742

Axis software, 956–958

B

- BankAccount **class**, 909–910, 913
- BankAccountTest **class**, 908, 910, 912
- Barracuda framework**, 553
- bars (||) EL logical operator**, 153
- BaseEntity **class**, 990, 1032
- baseline, performance comparison**, 865, 867
- basename **attribute**
 - bundle JSTL tag, 1106
 - message JSTL tag, 422
 - setBundle JSTL tag, 1111
- BasicServlet **servlet**
 - coding, initial, 487–488
 - declaration entry, 497
 - destroy method, 488, 492
 - directory, 486
 - doGet method, 488
 - doPost method, 490, 491
 - init method, 488, 492
 - Servlet interface implementation, 489–490
 - web.xml file, 495–496
- BEA Weblogic server**, 552
- bean **WebWork tag**, 557
- bean-managed persistence (BMP)**, 744, 745
- beanName **attribute**
 - insert Tiles tag, 653
 - put Tiles tag, 654
- beanProperty **attribute**
 - insert Tiles tag, 653
 - put Tiles tag, 654
- beanScope **attribute**
 - insert Tiles tag, 653
 - put Tiles tag, 654
- BeanUtils Commons library**, 382, 627, 646, 671, 1012
- begin **attribute**
 - forEach JSTL tag, 1093, 1100
 - forTokens JSTL tag, 1093
- beginjsptags.jar **file**, 357
- beginjsptags.tld **file**, 356–357
- Beginning JavaScript, 2nd Edition**, 375
- Beginning Web Programming with HTML, XHTML, and CSS**, 5
- Beginning XML, 2nd Edition**, 1098
- Bid **JavaBean**, 292–293, 297
- Bidder **JavaBean**, 297–298
- BidError **JavaBean**, 289, 290, 291, 297
- bind **Spring tag**, 569, 578, 587
- Blob **class**, 755
- blue.jsp **file**, 502, 505, 509

BMP (bean-managed persistence), 744, 745

body **action, 273**

body-content tag **directive attribute, 335, 1068**

Book **class, 996–997**

Book.hbm.xml **file, 1018–1019**

BookstoreConstants **class, 1054**

BookstoreController **class, 1005–1008, 1029, 1032, 1035, 1052**

boolean **data type, 156, 157, 161, 279**

BooleanType.tag **file, 161**

Borland Optimizelt software, 865

bottleneck, identifying, 865

boxTitle **class, 120, 129**

braces, curly ({ }) **PatternLayout object token delimiters, 456**

brackets, square ([]) **EL operator, 162, 163**

breakpoint, setting, 464–467

BrowseCategoryAction **class, 1005, 1030–1032**

BSF framework, 553

buffer

flushing, 259, 1064, 1066, 1072

out object bufferSize property, 1064

page directive buffer attribute, 1066

build.xml **file**

creating, 899

property file, using with, 899

shopping cart application, 1010, 1011–1014

Spring framework, 570–571

structure, 893

Struts framework, 625–626

Web portal, 947–949

WebWork framework, 559

bundle **attribute**

JSTL tag, 420, 421–422, 423, 1106

message JSTL tag, 422, 1108

bursty traffic, 862

business object, 81

button

commandButton JSF tag, 685, 715, 718

radio, 556, 609

text language, localizing, 405, 415

C

CA (certificate authority), 831, 850

Cactus framework, 907

calc.jsp **file, 707–709, 715, 717**

CalculateShipping **method, 280**

Calendar **object, 360**

call graph, 865

CallableStatement **class, 754**

cartstatus.tag **file, 1027**

Cascading Stylesheet. See CSS

catalina-ant.jar **file, 625**

catch

action, 314, 317, 328

JSTL tag, 185, 1090

Category

class

shopping cart application, 995–996, 1018

Web storefront application, 82, 83

logging tag attribute, 461

category-browse.jsp **file, 1033**

Category.hbm.xml **file, 1019**

category-list.jsp **file, 1030**

cause exception **object property, 1065**

certificate authority (CA), 831, 850

Certificate Information dialog box (Internet Explorer), 851

Certificates dialog box (Internet Explorer), 851

CGI (Common Gateway Interface), 5–7

cglib-full-2.0.1.jar **file, 784, 1012**

ch01.war **file, 25–28, 29**

ch02.war **file, 38, 47**

ch03.war **file, 80**

ch04.war **file, 122**

ch05.war **file, 149**

ch06.war **file, 186**

ch07.war **file, 221**

ch08obj.jar **file, 271**

ch08.war **file, 244**

ch09.war **file, 281**

ch10.war **file, 306**

ch12.war **file, 366**

ch13.war **file, 401**

ch15.war **file, 485**

chapter16.xml **file, 525**

chapter22.xml **file, 739–740**

chapter23.xml **file, 758**

chapter24.xml **file, 837**

char **data type, 157**

Character **data type, 157, 1084**

charAt **method, 158**

charEncoding import **JSTL tag attribute, 1092**

checkbox **tag**

Struts, 609

WebWork, 556

checkField **tag, 382, 385–386**

CheckoutAction **class, 1005, 1043–1044**

checkoutcompleted.jsp **file, 1054**

checkout.jsp file

checkout.jsp file, **1044, 1045–1047**

Checkstyle software, 892

China, localizing for, 400, 403–407, 411–413, 414–415, 418

CHO (continuous hours of operation) testing, 864

choose **JSTL tag**

forEach loop, nesting in, 350

form processing, using in, 131, 226

if...then...else Java construct, replacing with, 204

include directive, using with, 234, 236

otherwise tag, using with, 44

param implicit object, using with, 45, 46

request, switching through front controller using, 287

switch...case Java construct, replacing with, 204

syntax, 1091, 1099

taglib directive, using with, 226, 228

when subtag, 44, 45, 287–289, 1098, 1105

XPath expression, working with using, 1099

Chopra, Vivek (Professional Apache Tomcat 5), 868

CircleApplet.java file, **269–270**

class

Fixture.hbm.xml file class attribute, 820

importing, 85, 218

interface versus, 765

Java

JavaBean compared, 276

page translation to Java class, 217–218

servlet relation to, 484–485

JavaBean

compilation into class, 57

Java class compared, 276

location, 281

useBean action, referencing in, 244

logging request, retrieving class name of caller issuing, 457

name, 218

scripting element placement in class definition, 79

syntax, 79

Tiles factory class, 647, 658

useBean action class attribute, 244, 1071

.class files, **484**

ClassLoader object, **743**

classname attribute

initComponentDefinitions Tiles tag, 658

useAttribute Tiles tag, 657

cleanhtml.tag file, **343–344, 356**

clearCartWhenApproved method, **1053–1054**

Clearcase software, 890

clearList function, **205**

client

Application Client container, 722–723

code execution, client-side, 118–119

fat, 723

MDB access, 745

thin, 727

validation, client-side, 364–366, 620

ClientDispatcher **Webwork Dispatcher, 556**

Clob class, **755**

CMP (container-managed persistence), 744

Coco Base framework, 553

cocucod.htm file, **429**

coding standard, enforcing, 891–892

collection

Commons Collections library, 646, 671, 682, 784, 1012

EL, accessing in, 162–167, 1079

iteration, 193

color

DHTML menu color customization, 134–137, 139–141

drop-down list selector, 271–272

search result, highlighting, 349–351

user preference color theme selector, 123–125, 129, 131–132

combobox **WebWork tag, 556**

comma (,)

Appender list separator, 458

class name separator, 218

commandButton **JSF tag, 685, 715, 718**

command-line prompt, 357

commandLink **JSF tag, 715**

Common Gateway Interface (CGI), 5–7

Commons libraries

BeanUtils, 382, 627, 646, 671, 1012

Collections, 646, 671, 682, 784, 1012

Digester, 627, 671, 682, 1012

JSF Commons libraries requirement, 682

Logging, 554, 671, 682, 784, 1012

Validator, 627, 1012

comparison operator, EL, 154–155, 1080–1081

compilation. See also Ant compiler

container, carried out by, 11

debugging

compile time, at, 437–441

precompiling before, 470

error generation, 304, 308, 438–439

Jasper compiler, 315, 320, 484, 557–558

JavaBean compilation into class, 57

page processing, compilation-phase, 215–216

precompilation, 470, 500, 876–879

- scripting element, 305
- servlet, 470, 484, 486–487
- useBean action role, 248
- Webwork application, 559
- CompleteOrderAction **class**, **1005, 1043, 1050–1051**
- component **Tiles** insert **tag attribute**, **653**
- com.wrox.begjsp.ch03 **package**, **82**
- concurrency**, **479, 774**
- Concurrent Versions System software**. *See* **CVS software**
- conditional flow control**. *See* **flow control, conditional**
- conditional operator**, **EL**, **153**
- confidentiality**, **830–831**
- config
 - function, 449
 - object, 1065
- ConnectionFactory **object**, **735**
- console**, **442**
- ConsoleAppender **class**, **458**
- ConsoleHandler **class**, **450, 451**
- ConsoleOut **Appender**, **458**
- constant, declaring**, **75, 201–202**
- container**. *See also* **Tomcat server**
 - authorization, container-based, 855
 - CMP, 744
 - compilation carried out by, 11
 - concurrency considerations, 479
 - directive, container instruction provided by, 214
 - EJB, 722–723, 727, 742
 - error handling role, 309
 - Java translation role, 216, 217, 247–249
 - J2EE
 - Applet container, 722, 723
 - Application Client container, 722–723
 - deployment descriptor, 724
 - Enterprise Bean container, 722–723, 727, 742
 - JNDI, relation to, 735
 - lifecycle management role, 724
 - resource pooling role, 724
 - security role, 724
 - transaction management role, 724
 - Web Component container, 722, 723, 727, 728–729
 - JVMs, using multiple, 76
 - log setting, changing without restarting, 453–454, 459–460
 - page
 - communication role of page directive, 85, 217
 - content type, informing container of, 220, 221–222, 223
 - destruction, container role in, 76, 86
 - processing, container role in, 215–217
 - request handling role, 11–12, 22, 218, 248
 - servlet, 8–9, 12, 445–446, 453, 492
 - session tracking role, 218
 - taglib directive, container instruction provided by, 214, 223–224
 - web.xml file independence, 495
- container-managed persistence (CMP)**, **744**
- contains **JSTL function**, **1118, 1119**
- containsIgnoreCase **JSTL function**, **351, 1118, 1119**
- Content-Type **HTTP header**, **425**
- contentType page **directive attribute**, **220, 223, 386, 1067**
- context**
 - import JSTL tag context attribute, 1092
 - redirect JSTL tag context attribute, 1096
 - servlet, 76–77, 85–86, 87, 446, 508
 - Spring, 567
 - url JSTL tag context attribute, 1097
- context-param web.xml **file element**, **517–518**
- continuous hours of operation (CHO) testing**, **864**
- Control Center (MySQL)**, **752, 756**
- Controller servlet**
 - action mapping, 503
 - initialization parameter, accessing, 506–507
 - initializing, 504–505, 507
 - request handling, 502–503, 505, 508–509, 537, 542–543
 - web.xml file, 504–505
- controllerClass **Tiles** insert **tag attribute**, **653**
- ControllerServlet **servlet**
 - action mapping, 503
 - blue.jsp file, 502, 505, 509
 - cool.do action, 501–502
 - hot.do action, 501
 - init method, 505, 507
 - Model 2 architecture environment, 536–539
 - red.jsp file, 502, 505, 509
 - request handling, 502, 505, 508–509
- controllerUrl **Tiles** insert **tag attribute**, **653**
- convertDateTime **JSF tag**, **712**
- Converter **interface**, **713**
- convertNumber **JSF tag**, **712–713**
- cookie**
 - request cookie information, accessing, 46
 - session, managing using, 108–109
- cookies **object**, **46, 1087**
- cool.do **action**, **501–502**

`cos` **function**, 178

counter

- page access counter, 531
- variable, 352, 437, 443–444

country code, 399–400

`countVar highlighttableext.tag` **file attribute**, 352

coupling, loose, 929

`cppunit` **framework**, 907

`CREATE` **SQL command**, 756

`createValidator` **method**, 703

`creationTime session` **object property**, 1064

credit card

- shopping cart application credit card processing, 988, 1048, 1050, 1052
- validating, 623, 1050

Criteria object, 1003

Crystal Methodologies Web site, 887

CSS (Cascading Stylesheet)

- auction Web site application output, formatting using, 294–295
- described, 119–120
- execution, client-side, 118–119
- generating CSS content, 119, 126
- HTML
 - embedding CSS in, 120
 - linking to external CSS from, 120
 - relation to CSS, 119–120
- user preference selector application, 127–129
- `validateError` class, 376–377
- Web portal, 51–52

currency

- code, 399, 712, 1108
- display, formatting, 85, 90, 195, 202, 709
- JSF, working with in, 709, 712–715
- localizing, 396, 399, 426–429, 712–715
- symbol, 396, 712, 1108

Customer

- `JavaBean`, 277–280
- object, 539–540, 541, 546

`CustomerManager` **object**, 539, 541–542, 545, 546

`CustomerOrder` **class**, 989, 990–992, 1051, 1052, 1053

`CustomerOrder.hbm.xml` **file**, 1019–1020

CVS (Concurrent Versions System) software

- Ant, using with, 895–896, 906
- Changelog, 896
- checking code in/out, 903, 905–906
- commit operation, 903
- comparing code change across revisions, 906

downloading, 903

installing, 903

manual, 907

module, 903, 905

repository, 903

server, connecting to, 904–905

trunk/branch code structure, 904

Web site, 903, 907

WinCVS client, 905

D

DAO (Data Access Object), 920, 934

data integrity, 830–831

data transfer object (DTO), 276, 875, 935

data type

`boolean`, 156, 157, 161, 279

`char`, 157

`Character`, 157, 1084

converting

automatic, 158–162, 1083

backing bean, using, 705–711

`boolean` value, to, 156, 161

boxing, 157–162, 1083

character, to, 158, 160, 1084

JSF, in, 705–711

number, to/from, 158, 710, 711, 712–715, 1083–1084

string, to, 157–158, 1083

`Double`, 157, 161

`EL`, 156, 157–162, 1083–1084

`int`, 157

`Integer`, 157

Java primitive type, 157

JDBC, 755

`long`, 157

`Short`, 158, 160

`weak`, 157

database. See also JDBC (Java Database Connection); SQL (Structured Query Language)

adding record, 783

concurrency, 774

connection

closing, 765, 769, 770

obtaining, 749–752, 754–755

pooling, 754, 874

creating, 756

data source

JDBC `DataSource` object, 735, 738, 751

JNDI lookup, 741, 748, 751, 773

- specifying, 741, 751, 1116
- transaction, 754, 1117
- deleting
 - logical delete, 774
 - object using Hibernate, 792, 822–823
- entity EJB, 744–745
- Hibernate, accessing using
 - adding record, 783
 - deleting object, 792, 822–823
 - programmatic method, 791
 - query, 782–783
 - relationship management, 801
 - session management, 791, 792, 1000–1002, 1016–1018
 - shopping cart application, 1000–1002, 1003–1004, 1016–1019
 - SQL, 819
- HSQldb, 749
- in-memory, 749, 981
- J2EE environment, working with in, 738–741
- logging to, 456
- migrating, 775
- MySQL platform
 - Control Center, 752, 756
 - downloading, 752
 - driver, 739, 752–753, 1013
 - installing, 752
 - shopping cart application configuration, 1013, 1016
 - starting, 753
 - Web site, 752
- object-relational impedance mismatch, 777
- ODBC, 750
- ORM, 777
- password
 - access password, 756, 1116
 - storing in database, 748
- persistence, 782, 784–786, 802, 932–933
- relational
 - ERD, 987
 - introduced, 748
 - many-to-one association, unidirectional, 820
- resultset
 - cursor, 755
 - iteration, 755, 773
 - JSP extraction of resultset data by, 770
- session management, 107–114, 791, 792, 1000–1002, 1016–1018
- shopping cart application
 - authentication, 1016
 - creating value, 1004
 - entity definition, 989–990
 - field list, 988–989
 - finding value by ID, 1004
 - Hibernate configuration, 1000–1002, 1003–1004, 1016–1019
 - listing all values in, 1003
 - MySQL configuration, 1013, 1016
 - session management, 107–114, 1000–1002
 - updating value, 1004
- table, creating, 756–757
- transaction
 - atomicity, 775
 - consistency, 775
 - data source, 754, 1117
 - durability, 775
 - isolation, 775, 776, 1117
 - JSTL transaction tag, 1116–1117
 - J2EE container transaction management role, 724
 - response time, 862
 - updating, 774
 - user preference, storing in, 748
- Database Connection Pooling (DBCP), 754, 874**
- `data.jsp` file, **233–234, 235–236**
- `data-model` JSF event, **716**
- `DataSource`
 - class, 735, 738, 751, 754, 773
 - query JSTL tag attribute, 1115
 - `setDataSource` JSTL tag attribute, 1116
 - transaction tag attribute, 1117
 - update JSTL tag attribute, 1117
- date**
 - Calendar object, 360
 - displaying current, 526–527
 - formatting
 - `formatDate` tag, using, 185, 432, 1106–1107
 - localization, 396, 399
 - JSF converters, 711–712
 - log date information, retrieving, 457
 - parsing using `parseDate` JSTL tag, 1109–1110
 - SQL statement, passing date parameter to, 1114
 - tag file, `date-display`, 330–331, 336–337
 - validating, 622–623
- `Date` class, **330, 755**
- `dateParam` JSTL tag, **1114**
- `dateStyle` attribute
 - `convertDateTime` JSF tag, 712
 - `formatDate` JSTL tag, 432
 - `parseDate` JSTL tag, 1110
- `DateTimeConverter` JSF converter, **711–712**
- DBCP (Database Connection Pooling), 754, 874**

debit **method**, 908, 909–910

debug

Log4j tag, 461

method, 459

Debug ⇨ **Start Session** ⇨ **Attach and fill (NetBeans)**, 469

Debug ⇨ **Start Session** ⇨ **Run in Debugger (NetBeans)**, 467

debugging

breakpoint, setting, 464–467

compilation

compile time, debugging at, 437–441

precompiling before debugging, 470

concurrency considerations, 479

HTTP response document, commenting, 474

hypothesis phase, 436

instrumenting code, 442–445

laboratory environment, in, 470

load, under, 470–471

logging output

ConsoleHandler class, using, 450, 451

context information, adding to log file, 471–474

counter value, 443–444

FileHandler class, using, 450

JDK logger, using, 447

level of logging used, 448–449, 450, 456

Log4j framework, using, 454–460, 461, 470, 473, 479

Logger class, using, 447

LogManager class, using, 448, 450, 454

println method, using, 442–445

SDK logging framework, using, 451–453, 454

SocketHandler class, using, 450

tag library, using, 460–464

observation phase, 436

origin of term, 435

prediction phase, 436

problem, intermittent, 474–478

production environment, 441–442, 469–474

remote, 468–469

runtime bug, 437

scientific method, using, 436–437

scriptlet, 439–441

servlet, 470

snoop application, using, 475–478

stepping through code, 468

testing solution, 436

Tiles debugging output, 647

Tomcat server, configuring to listen for debugger, 469

users, simulating concurrent, 470–471

variable value, watching, 443–444, 467–468

decimal point display, 152

declaration scripting element, 35, 75–77, 79, 189–190, 1075

declare variable **directive attribute**, 339, 1070

default out **JSTL tag attribute**, 1094

DefaultAction **class**, 1005

define **Struts tag**, 614–615

definition **attribute**

insert Tiles tag, 653

Tiles tag, 651, 654, 658–659

definitions-config tiles-defs.xml **file attribute**, 647

definitions-debug tiles-defs.xml **file attribute**, 647

definitions-factory-class tiles-defs.xml **file attribute**, 647

definitions.jsp **file**, 651, 652

definitions-parser-details tiles-defs.xml **file attribute**, 647

definitions-parser-validate tiles-defs.xml **file attribute**, 647

DELETE **HTTP action**, 490

deleteObject **method**, 822–823

deleteTeamFromRoster **method**, 770

deleteVenueFromRoster **method**, 792

delims forTokens **JSTL tag attribute**, 1093

deployment descriptor. See web.xml **file**

description

attribute

attribute directive, 338, 1069

tag directive, 335, 1068

variable directive, 339, 1070

web.xml file element, 496

Design a Cake form, 168–173

design pattern, 275, 920, 932, 933, 955

destdir javac **task attribute**, 878

Destination **object**, 735

destroy **method**

BasicServlet class, 488, 492

HttpServlet class, 490

Servlet interface, 488, 494

destroying

page, 76, 86

servlet, 488, 492–493, 494

details.jsp **file**, 639–640

developerWorks **software**, 1001

development methodology, 886–887

development web.xml **file attribute**, 880

DHTML (Dynamic Hypertext Markup Language)**menu system**

- color customization, 134–137, 139–141
- entertain.jsp file, 144
- font customization, 134–137, 139–141
- HTML menu compared, 132
- index.jsp file, 137–139
- JavaScript generation, 141–143
- menu.js file, 133
- news.jsp file, 141–143
- showportal.jsp file, 139
- Top Nav Bar script, 133
- weather.jsp file, 144

dialect **Hibernate keyword, 791**

Digester Commons library, 627, 671, 682, 1012

Digital ID SSL certificate, 850

direct **Tiles put tag attribute, 655**

directive. See also specific directive

- attribute, 214, 215
- container, instruction provided by, 214
- described, 32–33
- error handling
 - container, caught by, 309
 - include, 236, 309, 311
 - page, 219, 220, 311–312, 321
 - syntax error, 309
- syntax, 33, 214–215, 309, 1059
- tag file, using in, 215, 335–336
- XML
 - compatibility, 214–215
 - converting directive to, 231–233, 237–239

dispatch **method, 542, 543**

DispatcherServlet **servlet, 572**

disperr.jsp **file, 328**

displayCustomer.jsp **file, 545, 547**

displayform.jsp **file, 566**

displaylist **action, 537, 538–539**

displayList.jsp **file, 542–544**

display-name

- tag directive attribute, 335, 1068
- web.xml file element, 496–497

dispPrice **method**

- currency formatting by, 85, 90
- declaring, 75, 85
- JSTL, replacing with, 190, 195, 202

div **EL operator, 152**

divide-by-zero exception, 324–325, 328

division (arithmetic), 152, 1080

doAction **method, 1006, 1008, 1029, 1052**

doBody **action, 273, 342**

doc **attribute**

- parse JSTL tag, 1103
- transform JSTL tag, 1104

docSystemId transform **JSTL tag attribute, 1104**

Document Type Definition (DTD) servlet support, 496

doDelete **method, 490**

doExecute **method, 560, 561**

doFilter **method, 473**

doGet **method**

- BasicServlet class, 488
- HttpServlet class, 490

dollar sign, curly braces ({ }) EL expression

delimiters, 45

dollar sign (\$) JavaScript regular expression operator, 375

dom4j-1.4.jar **file, 784, 1012**

doPost **method**

- AdminServlet servlet, 765, 800
- BasicServlet class, 488
- HttpServlet class, 490
- SimpleController servlet, 542

doPut **method, 490**

DoSearchAction **class, 595**

Double **data type, 157, 161**

DoubleRangeValidator **object, 697**

DoubleType.tag **file, 161**

doValidation **method, 562, 565**

driver setDataSource **JSTL tag attribute, 1116**

DriverManager **class, 754**

drop-down list

- color selector, 271–272
- HTML/XML selector, 274
- Struts, creating using, 634–639
- validating drop-down list field, 634–639

DTD (Document Type Definition) servlet support, 496

DTO (data transfer object), 276, 875, 935

dump **tag, 461**

DynaActionForm **class, 602–603, 620**

Dynamic Drive Web site, 132–133

Dynamic Hypertext Markup Language menu system.

See DHTML menu system

dynamic-attributes tag **directive attribute,**

336, 354, 1068

DynaValidatorForm **class, 620, 628**

E

ECMA (European Computer Manufacturers Association), 120

ECMAScript, 366. See also JavaScript

EditProfileAction class

EditProfileAction **class**, 972–974

EditRegistrationAction **class**, 970

Egypt, localizing for, 398, 428, 431

ehcache-0.7.jar **file**, 784, 1012

EJ Technologies Profiler software, 865

EJB (Enterprise JavaBean)

advantages/disadvantages, 742–743

AWT, using for output, 742

ClassLoader object support, 743

container, 722–723, 727, 742

entity, 744–745

field, static, 742

file system access, 742

JavaBean compared, 301

J2EE, relation to, 301, 552, 723, 729, 741

lifecycle management role, 742, 744

MDB, 745

network socket support, 743

persistence, 552, 744

reusability, 742

session, 743–744

this keyword support, 743

thread management, 742

tier, 301

Timer Service feature, 745–746

EJBCA software, 831

EJBHome **object**, 735

EL (Expression Language)

abs function, 173, 175

array member, accessing, 1079

attribute

implicit object, attaching to, 86–88, 162–163

value, using EL in, 148, 1078

attribute_name.property expression, 257

collection, accessing, 162–167, 1079

data type, 156, 157–162, 1083–1084

error handling, 326–327

escapeXML function, 391, 393

function

calling, 1082

custom, 173–177

method call, converting to EL-accessible function,
190–193, 205–206

syntax, 1082

HTML output, 149, 152–153

ignoring EL expression, 219, 336, 515–516, 1067,
1069

index.jsp file EL coding examples, 149–151,
159–160, 164, 175

JavaBean

property value, rendering using, 257–258

using EL expression in, 247, 249–250

JSP, relation to, 146

JSTL, using with, 36, 148, 179

literal value, working with, 1079

map, accessing, 1078–1079

namespace, 173, 1082

null value, working with, 155–156, 158, 191

object, implicit

attribute, attaching, 86–88, 162–163

category, 167, 1084

described, 45

form processor, 168–173

listing of implicit objects, 45–46

scope, 112–114, 168

object property, accessing, 162–167, 1078

operator

arithmetic, 151–153, 178, 1080

comparison, 154–155, 1080–1081

conditional, 153

data type, 156

div, 152

empty, 155–156, 191, 1081

logical, 153–154, 1080

mod, 152, 1080

precedence, 1081–1082

runtime, evaluation at, 45

scripting

element alternative, as, 146

independence provided by, 36

syntax, 45

template, using inline with, 148, 1077

text, rendering EL expression as, 219

variable

dependence on generated, 258

named, 146–147, 162, 1079

element **action**, 273

ELException **exception**, 327

el-ignored web.xml **file element**, 515–516

else **WebWork tag**, 557

elseif **WebWork tag**, 557

e-mail

validating e-mail address, 623, 632–634

Web application, sending using, 746

embed **HTML tag**, 267, 272

empty **EL operator**, 155–156, 191, 1081

end **attribute**

forEach JSTL tag, 1093, 1100

forTokens JSTL tag, 1094

end **user**, 441

- endsWith **JSTL function**, 1118, 1119
- enterbid.jsp **file**, 285, 287–288, 289, 290–291, 302
- Enterprise Bean container**, 722–723, 727
- Enterprise JavaBean**. *See* **EJB**
- entertain.jsp **file**, 58, 69, 72, 144
- entity EJB**, 744–745
- entity relationship diagram (ERD)**, 987
- EntityManager **class**, 1000, 1002–1003, 1004, 1029
- EntityManagerFactory **class**, 1000, 1002, 1004–1005, 1029
- env-entry web.xml **file element**, 521–522, 735–738
- equal **Struts tag**, 611–612
- equals signs (==) EL comparative operator**, 45, 154
- ERD (entity relationship diagram)**, 987
- error handling**. *See also* **exception**
 - action
 - include action, 312
 - setProperty action, 313, 316
 - syntax error, 309
 - auction Web site application, 289–290, 291, 297, 368–369
 - authentication application, Struts-based, 598–599
 - catching, 309, 314, 317, 328
 - coding syntax error, 304–305, 309
 - compilation, error generation during, 304, 308, 438–439
 - container role, 309
 - data-input error, 327
 - directive
 - container, caught by, 309
 - include, 236, 309, 311
 - page, 219, 220, 311–312, 321
 - syntax error, 309
 - divide-by-zero error, 324–325, 328
 - EL error, 326–327
 - forwarding error page, 321–322
 - HTTP error status code, 306–307, 310, 322, 326
 - index.jsp **file** error handling code, 307–308
 - JSTL error, 326–327
 - JVM trace information, retrieving, 315, 318–319
 - message, displaying, 289, 382, 383, 386
 - pagecontext.errorData **object**, 322, 325, 326
 - pagecontext.exception **object**, 322, 323, 325, 326, 327
 - remembering detected error, 376–377, 579
 - request-time, 236, 312–314, 315–320, 322–323
 - runtime error, 305, 313
 - scripting element error, 305–309
 - stack trace information, retrieving, 315, 318–319
 - Struts errors tag, 610
 - syntax error, 304–305, 309
 - template error, 327
 - Tomcat server error-reporting screen, 306
 - translation-time, 236, 312–313
 - Web portal application, 964, 965
 - web.xml **file** error-page element, 518–519
- error tag**, 461
- ErrorGenerator **JavaBean**, 322–323, 324, 328
- errorPage page **directive attribute**, 220, 1066
- error-page web.xml **file element**, 518–519
- Errors **object**, 587
- escapeXML
 - EL function, 391, 393
 - JSTL function, 342, 344, 1118, 1120
 - out JSTL tag attribute, 1094, 1102
- EShop **class**, 82, 83, 90, 205, 274
- eshop-taglib.tld **file**, 191–193, 195, 206
- estore.jsp **file**, 83–85, 188–190, 194–195, 211
- European Computer Manufacturers Association (ECMA)**, 120
- event**
 - action event, 715, 717
 - JavaBean event, 55, 276
 - JSF listener, 715–718
 - logging event priority, retrieving, 457
 - MDC, 457
 - MVC event-driven environment, 534
 - NDC, 457, 471–473
- example tag **directive attribute**, 335, 1068
- exception**. *See also* **error handling**
 - ArrayIndexOutOfBoundsException, 325
 - divide-by-zero, 324–325, 328
 - ELException, 327
 - implicit object, 1065
 - JasperException, 315, 320
 - NullPointerException, 313
 - pagecontext.exception **object**, 322, 323, 325, 326, 327
 - report, 308
 - SQLException, 770
 - variable, expressing exception as, 219
- exclamation mark, equals sign (!=) EL comparative operator**, 45, 154
- execute **method**
 - Action class, 672
 - ActionForm parameter, 600
 - BookstoreController class, 1006, 1008, 1029
 - FormAction class, 636
 - VenueProcessingCommand class, 800
- Expert One-on-One J2EE Design and Development (Johnson)**, 741

expression

- regular expression, 375
- scripting element, 35, 77, 79, 1076

Expression Language. See EL

extends attribute

- definition Tiles tag, 654
- page directive, 217–218, 1066

eXtensible Markup Language. See XML

Extensible Stylesheet Language Transformation (XSLT), 557, 1104

Extreme Programming Web site, 887, 888

Extreme Programming (XP), 887, 888–889, 903

F

- faces-cfg.xml file, 694–695, 699, 715
- faces-config.xml file, 683, 687–688, 707, 718

FacesContext object, 687, 698

FacesServlet object, 683, 687, 689–690

factory design pattern, 920, 932, 933

fallback action, 267, 268, 272, 1074

fat client, 723

fatal tag, 461

FDD (feature-driven development), 887, 890

file attribute

- include directive, 231
- initComponentDefinitions Tiles tag, 658

FileHandler class, 450

filter parse JSTL tag attribute, 1103

findAction method, 800

findAll method, 1003

findAttribute method, 147, 252, 443–444

findById method, 1004, 1005, 1032

find-clientinfo.jsp file, 855

fine function, 449, 450

finer function, 449

finest function, 449

Fixture class, 801–802, 805–807, 819–820, 821

Fixture.hbm.xml file, 807–808, 820

fixture.jsp file, 817–819, 821–822, 823

FixtureProcessingCommand class, 808–811, 821

Flood software, 471, 864

flow control, conditional

- choose JSTL tag, using
- forEach loop, nesting in, 350
- form processing, using in, 131, 226
- if...then...else Java construct, replacing with, 204
- include directive, using with, 234, 236
- otherwise tag, using with, 44

- param implicit object, using with, 45, 46
- request, switching through front controller using, 287
- switch...case Java construct, replacing with, 204
- syntax, 1091, 1099
- taglib directive, using with, 226, 228
- when subtag, 44, 45, 287–289, 1098, 1105
- XPath expression, working with using, 1099

HTML form, 43–44

if JSTL tag, using, 153, 185, 204–205, 1091–1092, 1100–1101

Web portal, 944–945, 950

flush attribute

- get Tiles tag, 656
- include action, 259, 1072
- insert Tiles tag, 653

flushSession method, 792

font

- Chinese, 412
- DHTML menu system font customization, 134–137, 139–141
- installing, 412
- user preference selector application, 123–125, 129, 131–132

FooBarAction class, 674, 676–677

foobar-layout.jsp file, 675

football roster management application

- AbstractProcessingCommand class, 795–796
- addNewTeamToRoster method, 770
- addNewVenueToRoster method, 792
- addOrModifyVenue method, 792
- AdminServlet servlet, 757, 761–766, 773, 794–795, 800
- deleteTeamFromRoster method, 770
- deleteVenueFromRoster method, 792
- directory structure, 757
- doPost method, 765, 800
- findAction method, 800
- Fixture class, 801–802, 805–807, 819–820
- Fixture.hbm.xml file, 807–808, 820
- fixture.jsp file, 817–819, 821–822, 823
- FixtureProcessingCommand class, 808–811, 821
- FootyJDBCHelper class, 765, 772, 773
- getAllItems method, 791
- getRosterManager method, 766
- getTeamsInRoster method, 769, 773
- getVenuesInRoster method, 791
- HibernateRosterManager class, 766, 787–791, 812–817, 822
- JDBCRosterManager class, 766–769, 773
- menu system, 799, 820–821

- modifyTeamInRoster method, 770
 - modifyVenueInRoster method, 792
 - NullProcessingCommand method, 800
 - processFixtureAdd method, 821
 - processFixtureList method, 822
 - ProcessingCommand interface, 795, 800
 - processRosterAdd method, 765
 - processRosterDelete method, 765
 - processRosterList method, 765
 - processRosterModify method, 765
 - request handling, 773, 821
 - RosterManager interface, 765, 770–771, 787, 811
 - RosterManagerFactory object, 766, 771–772
 - Round class, 802–803, 820
 - Round.hbm.xml file, 803–804
 - rounds table, 778–781
 - safeClose method, 770
 - saveOrUpdate method, 792
 - SessionFactory object, 791
 - starting, 772
 - Team class, 804–805
 - Team Fixture Management window, 821
 - Team.hbm.xml file, 805
 - Venue class, 784–786
 - Venue.hbm.xml file, 786
 - venue.jsp file, 792–793, 800
 - VenueProcessingCommand class, 796–799, 800
 - web.xml file, 758–759
- footer**
- Tiles framework, 644–645, 662
 - Web application, adding to, 530
- FootyJDBCHelper **class, 765, 772, 773**
- forEach JSTL tag**
- begin attribute, 1093, 1100
 - choose JSTL construct, nesting in forEach loop, 350
 - end attribute, 1093, 1100
 - items attribute, 59, 1093
 - JavaBean property values, iterating through using, 59–60
 - scripting iteration, replacing with, 193, 194–195
 - select attribute, 1100
 - step attribute, 1093, 1100
 - syntax, 1092–1093, 1100
 - var attribute, 59, 1093, 1100
 - varStatus attribute, 1093, 1100
 - XPath expression, iterating through using, 1100
- form**
- authentication, form-based, 827, 843–847, 853, 858
 - choose JSTL tag, using in processing, 131, 226
 - flow control, conditional, 43–44
 - hidden element, 609
 - HTTP GET method, using in form submission, 37–38, 42–43, 64–66, 89
 - implicit object form processor, 168–173
 - initializing, 1039
 - internationalizing, 576, 579, 588–589
 - JavaBean, 580, 599, 600, 604–606, 617–619
 - language selector form, 401–407
 - locale-selector form, 401–407, 418–419
 - login form, 599, 601, 602–603
 - mapping applet, using with, 273
 - parameter
 - accessing parameter from form submission, 46
 - page, passing during submission, 67–68
 - POST method, submitting using, 37–38
 - preference selector form, 61–64, 126–127, 959–962
 - servlet/JSP-based processing, 730–734
 - setProperty action, processing using, 255–256
 - shopping cart application management form, 1039–1040
 - Spring, working with using
 - Controller, 572–574, 583, 590
 - internationalization, 576, 579, 588–589
 - Model, 574–575
 - validation, 572, 575–576, 578–579, 584–587
 - View, 577–579, 588–589, 590
 - Struts, working with using, 599–606, 608–610
 - timestamping submission, 734
 - URL request, 37–38, 39–40, 42
 - validating
 - credit card field, 623, 1050
 - date field, 622–623
 - drop-down list field, 634–639
 - e-mail address field, 623, 632–634
 - empty field, disallowing, 587, 620–621, 629, 631
 - generating validation JavaScript dynamically, 379–386
 - internationalizing validation message, 588–589
 - number field, 374–375, 382, 587, 641, 918
 - password field, 609, 620–622
 - remembering detected error, 376–377, 579
 - Spring, using, 572, 575–576, 578–579, 584–587
 - Struts, using, 611, 617–623, 628–629, 1022–1023
 - text field, 375–376, 632
 - Webwork, using, 554, 560, 561, 562, 565
 - Web browser role in processing, 37
 - Web portal
 - submission, 36–37, 38–43, 65–66
 - user preference selector form, 61–64, 126–127, 959–962
 - Webwork, working with using, 554, 560–565

FormAction class

FormAction **class**, 635–636

formatDate **JSTL tag**, 185, 432, 1106–1107

formatNumber **JSTL tag**, 152, 185, 202, 427–429, 1107–1108

formdisplay.jsp **file**, 561, 565–566

form.jsp **file**, 577–578, 583–584, 587, 638

FormProc **class**, 731–732, 734

formproc.jsp **file**, 169

FormTest **class**, 560, 562, 563–564, 565

formtest.jsp **file**, 560, 562–563

Forrest **framework**, 553

forTokens **JSTL tag**, 185, 1093–1094

forward

action, 264–265, 274, 293, 1073

Struts tag, 612

forwarding

error page, 321–322

global forward, 598–599

request

auction Web site application, 285, 287–288, 289, 290–294, 371–372

Controller servlet, 505, 508–509, 542–543

error page forwarding, 321–322, 323

forward action, using, 264–265, 274, 293, 1073

front controller, using, 284–288, 371–372

fragment attribute, 338, 348, 350, 1069

framework. *See* **Web framework**; *specific framework*

France, **localizing for**, 398, 400, 416, 417, 431

front controller

auction Web site application, 284–288, 299

design pattern, as, 275

index.jsp **file**, 286–287, 370

request, forwarding using, 284–288, 371–372

validation carried out by, 275

function. *See also specific function*

EL

calling, 1082

custom, 173–177

method call, converting to EL-accessible function, 190–193, 205–206

syntax, 1082

JSTL, 351, 1118–1119

functional testing, 889, 891

function-taglib.tld **file**, 176–177

GET **HTTP method**, 37–38, 42–43, 64–66, 89, 491

get **Tiles tag**, 656

getAllItems **method**, 791

getAsObject **method**, 713, 715

getAsString

method, 713

Tiles tag, 656–657, 666

getAttribute **method**, 86, 247, 249

getBookCount **method**, 1030

getCategory **method**, 1018

getCats **method**, 86, 190, 191–192, 274

getClass **method**, 447

getConnection **method**, 773

getContextPath **method**, 98

getCurrencyInstance **method**, 715

getCurrentBalance **method**, 910

getCustomer **method**, 545

getCustomers **method**, 542

getDate **method**, 331

getDivideByZero **method**, 325

getDOM **method**, 916

getElementById **method**, 376

getFirstName **method**, 278, 280

getInfo **XML tag**, 389, 391–392

getInitParameter **method**, 507, 517

getInitParameterNames **method**, 517

getItem **method**, 204

getItems **method**, 90, 97, 195

getLocalizedText **function**, 415–416

getLogger **method**, 447

getMetaData **method**, 738

getMinQual **method**, 162

getMonth **method**, 331

getMovies **method**, 677

getMsg **method**, 290

getName **method**, 250, 447, 830

getOrCreateCart **method**, 1052

getOrder **method**, 1051–1052

getOrderItem **method**, 1035

getParameter **method**, 270

getProperty **action**

index.jsp **file**, 254–255

name attribute, 257, 1072

news.jsp **file**, 57–58

property attribute, 257, 1072

request handling role, 252–254

syntax, 257, 1072

variable, dependence on generated, 258

getRemoteUser **method**, 830

getRequestURL **method**, 89

G

generation, inheritance, 660

GenericDispatcher **Webwork Dispatcher**, 555

GenericServlet **class**, 489

- getRootLogger **method**, 455
 - getRosterManager **method**, 766
 - getServletConfig **method**, 489
 - getServletContext **method**, 76–77, 85–86
 - getServletInfo **method**
 - HttpServlet class, 490
 - Servlet interface, 489
 - getServletPath **method**, 508
 - getSession **method**, 473
 - getSports **method**, 635–636
 - GetTag **class**, 656
 - getTeamsInRoster **method**, 769, 773
 - getText **method**, 916
 - getThings **method**, 565–566
 - getUser **method**, 562
 - getUserPrincipal **method**, 830
 - getVenuesInRoster **method**, 791
 - getWriter **method**, 492
 - getYear **method**, 331
 - Gradecki, Joseph (Professional Hibernate)**, 823
 - GRANT **SQL command**, 756
 - graphing performance**, 865
 - Great Britain, localizing for**, 399–400, 428, 429, 431, 433
 - greater than sign (>) EL comparative operator**, 45, 154
 - greater than sign, equals sign (>=) EL comparative operator**, 45, 154
 - groupingUsed **attribute**
 - convertNumber JSF tag, 712
 - formatNumber JSTL tag, 1108
 - GuessBean **class**, 693–694, 704–705
- ## H
- hasBindErrors **Spring tag**, 569
 - header**
 - HTTP, 46, 425
 - object, 46, 168, 1087
 - Tiles framework, 644–645, 659, 662
 - Web application, adding to, 530
 - headerValues **object**, 46, 168, 1087
 - HelloBean **class**, 685, 686
 - hello.jsf **file**, 688, 689
 - hello.jsp **file**, 18–19, 684, 692
 - hello2.jsp **file**, 19–21
 - HelloWorldExample **class**, 10–11
 - Hibernate framework**
 - Commons libraries used, 784
 - configuration files, 791
 - Criteria object, 1003
 - database access using
 - adding record, 783
 - deleting object, 792, 822–823
 - programmatic method, 791
 - query, 782–783
 - relationship management, 801
 - session management, 791, 792, 1000–1002, 1016–1018
 - shopping cart application, 1000–1002, 1003–1004, 1016–1019
 - SQL, 819
 - dialect keyword, 791
 - downloading, 784
 - installing, 784
 - JavaBean, using with, 777
 - JDBC compared, 782–783
 - mapping file, 783
 - persistence, configuring using, 782, 784–786, 802
 - Web application, converting to, 792, 800
 - Web site, 553
 - Hibernate Query Language (HQL)**, 823
 - hibernate.cfg.xml **file**, 791, 1002, 1017
 - hibernate.properties **file**, 791
 - HibernateRosterManager **object**, 766, 787–791, 812–817, 822
 - hibernate2.jar **file**, 1012
 - hidden **Struts tag**, 609
 - highlighttableext.tag **file**, 352
 - highlighttable.tag **file**, 349–350, 356
 - Hightower, Richard (Professional Java Tools for Extreme Programming)**, 903
 - HMVC (Hierarchical Model View Controller)**, 554
 - HomePageAction **class**, 672–673
 - hot.do **action**, 501
 - HQL (Hibernate Query Language)**, 823
 - HSQldb (Hyperthreaded Structured Query Language Database)**, 749
 - HTML (Hypertext Markup Language)**. *See also form*
 - a tag, 95
 - container, informing of HTML content type, 220, 221–222, 223
 - CSS
 - embedding in HTML, 120
 - linking to external, 120
 - relation to HTML, 119–120
 - DELETE action, 490
 - described, 5
 - drop-down list HTML/XML selector, 274
 - EL HTML output, 149, 152–153
 - embed tag, 267, 272

HTML (continued)

- generation
 - CGI, by, 5–6
 - JSP, by, 33
 - plugin action, by, 272–273
 - servlet, by, 11
 - tag, using custom, 345–348
- input element, 66
- JavaScript
 - embedding in HTML, 120, 374
 - linking to external, 121
- JSF HTML render kit, 685, 693
- JSP
 - embedding, 12, 22, 28
 - relation to HTML, 11
 - separating HTML from, 53, 919
- link tag, 120, 610
- menu system, DHTML compared, 132
- object tag, 267, 272, 273
- prototyping, 53
- rendering, page, 5, 54
- script tag, 121, 374
- Spring `htmlEscape` tag, 569
- style tag, 120
- table, generating using custom tag, 345–348
- validation code, embedding in HTML page, 365–366

HTML, XHTML, and CSS Bible, Third Edition (Pfaffenberger), 267

`html_basic.tld` file, 682

`htmlEscape` **Spring tag, 569**

HTTP (Hypertext Transport Protocol)

- authentication
 - basic, 827, 828, 837–842
 - digest, 827
 - session, 826
- debug HTTP response document, commenting, 474
- DELETE action, 490
- error status code, 306–307, 310, 322, 326
- GET method, 37–38, 42–43, 64–66, 89, 491
- header, 46, 425
- POST method, 37–38, 490, 491
- proxy server, 868
- request, 490–491, 868–870, 872
- servlet
 - decoding HTTP for, 490
 - request handling, 490–491
- Web browser URL access role, 5

HTTPS (Hypertext Transport Protocol Secure), 837, 852–853

`HttpServletRequest` class, 488, 489–490

`HttpServletRequest` object, 473, 599

`HttpSession` interface, 87

HttpUnit framework, 907, 915–919

Hypertext Markup Language. See HTML

Hypertext Transport Protocol. See HTTP

Hypertext Transport Protocol Secure (HTTPS), 837, 852–853

Hyperthreaded Structured Query Language Database (HSQLDB), 749

hyphen (-) country code separator, 400

I

IBM software

- Clearcase, 890
- developerWorks, 1001
- Rational Performance Tester, 864
- Websphere, 552

icon, associating with tag, 336

id

- attribute
 - definition Tiles tag, 654
 - useAttribute Tiles tag, 657
 - useBean action, 243, 244, 1070
- session object id property, 1063

IDL (Interface Definition Language), 725

i18n (Internationalization). See also l10n (Localization)

- branch office, done by, 396–397, 398
- China, 400, 403–407, 411–413, 414–415, 418
- country code, 399–400
- currency, 396, 399, 426–429, 712–715
- date formatting, 396, 399, 430–433, 1110
- described, 395
- Egypt, 398, 428, 431
- form, 576, 579, 588–589
- France, 398, 400, 416, 417, 431
- Japan, 428, 431, 433
- JavaScript, using, 419–420
- JSTL, using, 421–423
- Korea, 428, 431
- locale
 - described, 399
 - determining automatically, 426
 - scope, 421, 422
 - selector form, 401–407, 418–419
 - setting, 420, 421, 1112
- master copy, 396–397
- Mexico, 400
- number formatting, 396, 428, 1111
- per-request localization, 398

- properties file, 416–418
- request parameter encoding, 425–426
- resource bundle, using, 414–417, 420, 434, 1106, 1111
- shopping cart application, 1055
- Spain, 400, 428
- Spring, 569, 576, 579, 588–589
- Struts, 606–607, 616
- Taiwan, 400
- Tiles working in combination with Struts, adding using, 679
- time zone, 432–433
- United Kingdom, 399–400, 428, 429, 431, 433
- United States, 399–400, 428, 431
- Web-based application, 397–399
- if tag**
 - JSTL, 153, 185, 204–205, 1091–1092, 1100–1101
 - WebWork, 557
- if...then...else Java construct, replacing with**
 - choose **JSTL tag, 204**
- ignore attribute**
 - get Tiles tag, 656
 - getAsString Tiles tag, 657
 - importAttribute Tiles tag, 658
 - insert Tiles tag, 653
 - useAttribute Tiles tag, 657
- IIS (Internet Information Server), 8**
- implicit object. See object, implicit**
- importAttribute Tiles tag, 657–658, 666**
- importing**
 - class, 85, 218
 - CVS module, 905
 - debugging import operation, 441
 - JSTL import tag, 1092
 - page, 54, 335, 1069
 - tag directive import attribute, 335, 1069
- include**
 - action
 - body, 259
 - described, 259
 - error handling, 312
 - flush attribute, 259, 1072
 - include directive compared, 234–236, 262
 - include directive, using with, 262
 - index.jsp file, 261–262, 263–264
 - nesting, 263
 - news.jsp file, 261–262
 - page attribute, 259, 1072
 - param action, using with, 264, 265–266
 - request, triggering by incoming, 263
 - syntax, 259, 1072
 - translation time, performing at, 262
 - directive
 - choose JSTL tag, using with, 234, 236
 - described, 1067–1068
 - error handling, 236, 309, 311
 - explicit, 230
 - file attribute, 231
 - implicit, 230
 - include action compared, 234–236, 262
 - include action, using with, 262
 - index.jsp file, 231, 234, 263
 - news.jsp file, 55
 - request time, performing at, 231, 235
 - showportal.jsp file, 54–55
 - syntax, 231
 - tag file, 337
 - taglib directive, accessing using include construct, 229–230
 - translation time, performing at, 231–233, 235, 262, 263
 - XML, converting to, 231–233, 237, 238–239
 - Struts include tag, 615–616
 - WebWork tag, 557
 - include-coda web.xml **file element, 229–230, 517**
 - includedresource.tagf **file, 337**
 - include-prelude web.xml **file element, 229–230, 239, 516–517**
 - index.jsp file**
 - auction Web site application, 281, 286–287, 362
 - catch action, 317
 - EL coding examples, 149–151, 159–160, 164, 175
 - error handling code, 307–308
 - formatNumber JSTL tag, 427–428
 - front controller, 286–287, 370
 - getProperty action, 254–255
 - include
 - action, 261–262, 263–264
 - directive, 231, 234, 263
 - language-selector application, 406, 408
 - page directive, 222–223
 - plugin action, 270–271
 - setProperty action, 251, 252, 254–255, 316
 - Struts form application, 628, 634–635
 - taglib directive, 226, 227–228
 - Tiles layout configuration, 645
 - Tomcat server welcome page, 16
 - useBean action, 245–246

index.jsp file (continued)

- index.jsp **file (continued)**
 - validation coding, 362
 - Web portal, 51–52, 66, 67, 126–127, 137–139
 - XML, converting to, 236–238, 239
- index.jsp.java **file, 247, 248–250, 252, 498–500**
- indexOf **JSTL function, 1118, 1120**
- index1.jsp **file, 390, 393**
- index2.jsp **file, 221, 223, 226, 229–230**
- info
 - function, 449
 - method, 459
 - page directive attribute, 219, 1066
 - tag, 461
- inheritance**
 - described, 660
 - generation, 660
 - logger, 448, 449, 455
 - Tiles framework definition, 659–665, 667–668, 679
- inh-footer.jsp **file, 662**
- inh-header.jsp **file, 662**
- inh-layout.jsp **file, 661–662, 667**
- inh-mother-index.jsp **file, 663, 664, 667–668**
- inh-mother-menu.jsp **file, 662–663**
- inh-son-index.jsp **file, 663, 664, 667–668**
- inh-son-menu.jsp **file, 662**
- init **method**
 - BasicServlet class, 488, 492
 - CircleApplet applet, 270
 - ControllerServlet servlet, 505, 507
 - HttpServlet class, 490
 - Servlet interface, 488, 494, 505
- initialization**
 - form, 1039
 - page
 - global resource, acquiring, 76
 - servlet context attribute, attaching, 85–86
 - servlet, 488, 492–494, 504–505, 507
 - Tiles framework, 648
- initialize method, **1008**
- initializeForm **method, 1039**
- initParam **object, 46, 1087–1088**
- init-param web.xml **file element, 505**
- initSession **method, 792**
- in-memory database, 749, 981**
- in-process configuration, Web server, 8–9**
- input **HTML element, 66**
- input.jsp **file, 731, 732**
- inputText **JSF tag, 716–717**
- insert **Tiles tag, 649–650, 653, 670**
- InsertTag **class, 656**
- instrumenting code, 442–445, 865**
- int **data type, 157**
- Integer **data type, 157**
- integerOnly **attribute**
 - convertNumber JSF tag, 712
 - parseNumber JSTL tag, 1111
- integrity, data, 830–831**
- InterestItem **class, 935, 942–943**
- interface. See also specific interface**
 - class versus, 765
 - JavaBean instance interface implementation, 244
- Interface Definition Language (IDL), 725**
- internationalization (i18n). See i18n**
- Internet Explorer, installing certificate in, 850–851**
- Internet Information Server (IIS), 8**
- IntrRangeTag **class, 701–702**
- IntrRangeValidator **class, 700–701, 704**
- introspection feature, Java, 252**
- invoke **action, 273, 348, 350**
- IP (Internet Protocol) address, logging activity of specific, 471**
- isDigitsOnly **function, 374–375, 376**
- isELIgnored **attribute**
 - page directive, 219, 1067
 - tag directive, 336, 1069
- isErrorPage page **directive attribute, 219, 321, 1066**
- isolation transaction **tag attribute, 1117**
- isSecure **method, 830**
- isTextOnly **function, 375–376**
- isThreadSafe page **directive attribute, 1066**
- isUserInRole **method, 830**
- is-xml web.xml **file element, 516**
- ItemFeed **class, 935, 941–942**
- items **attribute**
 - forEach JSTL tag, 59, 1093
 - forTokens JSTL tag, 1093
- iteration**
 - collection, 193
 - counter variable, 352
 - database resultset, 755, 773
 - forEach JSTL tag, using
 - begin attribute, 1093, 1100
 - choose JSTL construct, nesting in forEach loop, 350
 - end attribute, 1093, 1100
 - items attribute, 59, 1093
 - JavaBean property values, iterating through using, 59–60
 - scripting iteration, replacing with, 193, 194–195

- select attribute, 1100
- step attribute, 1093, 1100
- syntax, 1092–1093, 1100
- var attribute, 59, 1093, 1100
- varStatus attribute, 1093, 1100
- XPath expression, iterating through using, 1100
- namespace, 746
- stack trace information, 318, 319
- Struts `iterate` tag, using, 613
- WebWork `iterator` tag, using, 557

iterative development methodology, 886–887

J

JAAS (Java Authentication and Authorization Service) API, 725

JACC (Java Authorization Contract for Containers), 727

JAF (JavaBeans Activation Framework) API, 726

Jakarta JMeter software, 471, 864, 866–872

Jakarta Struts framework. See Struts framework

`jakarta-oro.jar` file, 627

`jakarta-tomcat-5.0.28` files, 14–15

Jalopy software, 892

Japan, localizing for, 428, 431, 433

JAR files, 43, 355–359

Jasper compiler, 315, 320, 484, 557–558

Java

- `abs` method, 175
- applet, 268–273, 722, 723
- attribute, synchronizing Java reference with attached, 249–252
- checking if installed, 12–13
- class
 - JavaBean compared, 276
 - page translation to Java class, 217–218
 - servlet relation to, 484–485
- coding convention document, 892
- data type, primitive, 157
- EL custom function use of, 173
- embedding in JSP, 36, 75
- `if...then...else` construct, replacing with
 - choose JSTL tag, 204
- introspection feature, 252
- Map interface, 250–251
- resource bundle, Java 2, 414–417, 420, 434, 1106, 1111
- `round` method, 175
- scripting language default, as, 217
- `switch...case` construct, replacing with choose JSTL tag, 204

- translation
 - class, page translation to, 217–218
 - container role, 216, 217, 247–249
 - error handling, translation-time, 236, 312–313
 - include operation, carrying out during, 231–233, 235, 262, 263
 - page processing translation phase, 215–216, 217
 - unit, 217
 - `useBean` action role, 247–248
 - variable, dependence on generated, 258

Java API for XML Processing (JAXP) API, 725

Java API for XML Registries (JAXR), 726

Java API for XML-Based RPC (JAX-RPC), 726

Java Authentication and Authorization Service (JAAS) API, 725

Java Authorization Contract for Containers (JACC), 727

Java Blogs Web site, 826

Java Data Object (JDO), 552

Java Database Connection. See JDBC

Java IDL API, 725

Java Logging API, 875

Java Management Extensions (JMX), 727

Java Message Service (JMS), 726, 735, 745

Java Naming and Directory Interface. See JNDI

Java Secure Socket Extension (JSSE), 831

Java Transaction (JTA) API, 726, 735

Java 2 Enterprise Edition. See J2EE

Java Virtual Machine. See JVM

JavaBean. See also EJB (Enterprise JavaBean); specific JavaBean

- attribute
 - property, relation to, 277
 - searching for when instantiating, 246–247
- backing bean
 - creating, 686
 - data type conversion, using in, 705–711
 - validation, using in, 693–694, 704–705
- BMP, 744, 745
- class
 - compilation of JavaBean into, 57
 - Java class compared, 276
 - location, 281
 - `useBean` action, referencing in, 244
- Commons BeanUtils library, 382, 627, 646, 671, 1012
- constructor, default, 276
- described, 55, 276–277
- dragging and dropping, 276
- EL
 - expression, using in JavaBean, 247, 249–250
 - property value, rendering using, 257–258

JavaBean (continued)

- entertain.jsp file JavaBean usage, 58
- error message display, 289
- event, 55, 276
- form JavaBean, 580, 599, 600, 604–606, 617–619
- Hibernate framework, using with, 777
- instance
 - attribute, searching for when instantiating, 246–247
 - creating, 57, 243, 245, 256
 - interface implementation, 244
 - locating, 57, 243, 252
 - name, 57, 243, 244
 - request, attaching to, 57
 - scope, 57, 244
 - variable, referencing in, 247
- JSTL, retrieving JavaBean property value in, 299–300
- managed, 687, 695, 707
- MDB, 745
- method, 55, 280–281
- news.jsp file JavaBean usage, 57
- property
 - attribute, relation to, 277
 - boolean property, 278
 - described, 55, 277
 - iterating through values, 59–60
 - JSTL, retrieving property value in, 299–300
 - minQual, 162
 - multivalue, 58–60
 - printing value, 257
 - read only, 55, 56
 - read/write, 55, 277–278
 - rendering value using EL expression, 257–258
 - request parameter, filling with, 292
 - request parameter, matching with, 256
 - retrieving value, 55, 57–58, 253, 257, 278
 - setting value, 55, 251–252, 278
 - write only, 55, 56
- request
 - instance, attaching to, 57
 - passing request parameter to JavaBean, 253
 - property, filling with request parameter, 292
 - property, matching request parameter with, 256
- reusability, 276
- scripting element, using in, 249
- scriptlet
 - accessing JavaBean from, 247
 - method, invoking using, 280, 281
- serializing, 276
- specification, 276

Struts

- comparing JavaBean using, 611–612
- form JavaBean, 599–600, 604–606, 611, 617–619, 959
- Tiles framework, using in, 653, 654
- variable, 162, 247
- visual, 276
- weather.jsp file JavaBean usage, 58–59

JavaBeans Activation Framework (JAF) API, 726

JavaBeans API 1.0 Specifications for SUN, 276

javac **Ant compiler task, 878–879**

JAVA_HOME **variable, 13**

JavaMail API, 726, 735, 746

JavaScript

- background, historical, 120
- described, 120
- DHTML menu, 141–143
- ECMAScript, relation to, 366
- generating dynamically, 119, 141–143, 379–386
- HTML
 - embedding JavaScript in, 120, 374
 - linking to external JavaScript from, 121
- localization using, 419–420
- onSubmit handler, 377–378
- regular expression, 375
- test method, 375
- validation using, 366, 372–379, 382–383

javascript **Struts tag, 611**

JavaServer Faces. See JSF

JavaServer Pages Standard Tag Library. See JSTL

java.sql **JDBC package, 753**

javax.sql **JDBC package, 753**

JAXP (Java API for XML Processing) API, 725

JAXR (Java API for XML Registries), 726

JAX-RPC (Java API for XML-Based RPC), 726

JBOSS server, 552

JCA (J2EE Connector Architecture), 726

JDBC (Java Database Connection). See also database

- API, 725, 753
- Array class, 755
- Blob class, 755
- CallableStatement class, 754
- Clob class, 755
- data type, 755
- database connection, role in obtaining, 749–752, 754–755
- DataSource class, 735, 738, 751, 754, 773
- Date class, 755
- described, 725
- driver, 738, 741, 749–753

- DriverManager class, 754
- factory, 754
- Hibernate compared, 782–783
- interoperability provided by, 749
- JNDI interaction
 - data source lookup, 741, 748, 751, 773
 - resource factory configuration, 739
- JSP using with, 778–781
- J2EE support, 738
- ODBC bridge, 750
- PreparedStatement class, 754, 770
- record, adding using, 783
- ResultSet class, 755
- SQL support, 749, 753–754
- Statement class, 754
- Time class, 755
- Timestamp class, 755
- web.xml file configuration, 740
- `jdbc.jsp` file, **740–741**
- JDBCRosterManager class, **766–769, 773**
- JDK logger, 447**
- JDO (Java Data Object), 552**
- JMeter software, 471, 864, 866–872**
- JMS (Java Message Service), 726, 735, 745**
- JMX (Java Management Extensions), 727**
- JNDI (Java Naming and Directory Interface)**
 - data source lookup, 741, 748, 751, 773
 - described, 725
 - J2EE container, relation to, 735
 - namespace provided by, 735
 - registry, 738
 - resource factory configuration, 739
 - resource pool, 751
 - web.xml file `env-entry` element access provided by, 735–738
- JNDIHelper class, **737–738**
- `jndi.jsp` file, **736, 738**
- `jndi-neat.jsp` file, **737**
- Johnson, Rod (Expert One-on-One J2EE Design and Development), 741**
- `join` JSTL function, **1118, 1120**
- JProbe software, 865**
- JProfiler software, 865**
- JSF (JavaServer Faces)**
 - application, 688, 693, 705–711
 - backing bean, using with
 - creating backing bean, 686
 - data type conversion, 705–711
 - validation, 693–694, 704–705
 - `commandButton` tag, 685, 715, 718
 - `commandLink` tag, 715
 - Commons libraries requirement, 682
 - `convertDateTime` tag, 712
 - converter overview, 711
 - `convertNumber` tag, 712–713
 - creating JSF page, 684–685
 - currency data, working with, 709, 712–715
 - data type conversion, 705–711
 - `DateTimeConverter` converter, 711–712
 - directory structure, 681–682
 - event listening, 715–718
 - file access by user, preventing, 690
 - `inputText` tag, 716–717
 - JSF configuration, 683
 - lifecycle, 690–691
 - logging output, 716–717
 - method binding expression, 685
 - MVC implementation
 - Controller, 683, 690
 - Model, 692
 - navigation control, 687–688, 695, 707
 - `numberConverter` converter, 710, 711, 712–713
 - render kit, 685, 693
 - request handling, 689–691, 693
 - Restore view, 690, 692
 - security, 690
 - string conversion to/from JSF object, 710–715
 - Struts compared, 681, 718–719
 - tag library, 684, 685, 703–704
 - text
 - case conversion, 719
 - outputting, 684
 - string conversion to/from JSF object, 710–715
 - validating, 693, 697
 - validation
 - backing bean, using, 693–694, 704–705
 - creating custom validator, 698–703
 - number data, 697, 698–703
 - process validation, 691, 692
 - standard validator, 697
 - text data, 693, 697
 - value binding expression, 685
 - `view` tag, 685, 690
 - web.xml file configuration, 683, 690
- `jsf-api.jar` file, **682**
- `jsf-core.tld` file, **682**
- `jsf-impl.jar` file, **682**
- `.jsp` files, **11**
- `jsp-config` web.xml file element, **514**
- JspContext class, **87**

jspDestroy method

- jspDestroy **method**, 76, 85, 86, 191
- jspf **files**, 230
- jspInit **method**, 76, 85, 190, 191
- jsp-property-group web.xml **file element**, 514–517
- jspService **method**, 500
- JspWriter **class**, 460
- .jspx **files**, 34
- JSSE (Java Secure Socket Extension)**, 831
- JSTL (JavaServer Pages Standard Tag Library)**
 - application, converting to, 186–195
 - bundle tag, 420, 421–422, 423, 1106
 - catch tag, 185, 1090
 - choose tag
 - forEach loop, nesting in, 350
 - form processing, using in, 131, 226
 - if...then...else Java construct, replacing with, 204
 - include directive, using with, 234, 236
 - otherwise tag, using with, 44
 - param implicit object, using with, 45, 46
 - request, switching through front controller using, 287
 - switch...case Java construct, replacing with, 204
 - syntax, 1091, 1099
 - taglib directive, using with, 226, 228
 - when subtag, 44, 45, 287–289, 1098, 1105
 - XPath expression, working with using, 1099
 - coding errors, common, 209–210
 - constant, declaring, 201–202
 - contains function, 1118, 1119
 - containsIgnoreCase function, 351, 1118, 1119
 - core tags, 185, 1089–1090
 - dateParam tag, 1114
 - described, 43
 - dispPrice method, replacing with, 190, 195, 202
 - downloading, 184
 - EL, using with, 36, 148, 179
 - endsWith function, 1118, 1119
 - error handling, 326–327
 - escapeXML function, 342, 344, 1118, 1120
 - forEach tag, 59–60, 193, 194–195, 350, 092–1093
 - formatDate tag, 185, 432, 1106–1107
 - formatNumber tag, 152, 185, 202, 427–429, 1107–1108
 - formatting tags, 185, 1105–1113
 - forTokens tag, 185, 1093–1094
 - function, 351, 1118–1119
 - if tag, 153, 185, 204–205, 1091–1092, 1100–1101
 - import tag, 1092
 - indexOf function, 1118, 1120
 - internationalization using, 421–423
 - JavaBean property value, retrieving, 299–300
 - join function, 1118, 1120
 - length function, 1118, 1120
 - localization using, 421–423
 - message tag, 185, 420, 421, 423, 1108–1109
 - method call, converting to, 190–193, 205–206
 - otherwise tag, 44, 1095, 1101
 - out tag, 185, 1094, 1101–1102
 - param tag, 68, 1095, 1102, 1109, 1114–1115
 - parse tag, 1102–1103
 - parseDate tag, 1109–1110
 - parseNumber tag, 1110–1111
 - query tag, 1115
 - redirect tag, 1095–1096
 - remove tag, 185, 206, 1096
 - replace function, 344, 1118, 1120–1121
 - requestEncoding tag, 424, 425, 1111
 - set tag
 - constant, declaring using, 201–202
 - EL-accessible function, converting static method call to using, 190–191
 - JavaBean property value, retrieving using, 299
 - property attribute, 1097
 - scope attribute, 191, 1097, 1103
 - select attribute, 1103
 - syntax, 1096–1097, 1103
 - target attribute, 1097
 - useBean action compared, 258–259
 - value attribute, 1097
 - var attribute, 1097, 1103
 - setBundle tag, 1111–1112
 - setDataSource tag, 741, 1116
 - setLocale tag, 420, 421, 1112
 - setTimeZone tag, 1112–1113
 - shopping cart application, JSTL-based, 195–199, 203
 - split function, 1118, 1121
 - SQL tags, 185–186, 778–781, 1113–1118
 - startsWith function, 1119, 1121
 - substring function, 1119, 1121
 - substringAfter function, 1119, 1121
 - substringBefore function, 1119, 1122
 - taglib directive JSTL declaration, 152, 190
 - timeZone tag, 432, 1113
 - toLowerCase function, 1119, 1122
 - toUpperCase function, 1119, 1122
 - transaction tag, 1116–1117
 - transform tag, 1104
 - trim function, 1119, 1122
 - update tag, 1117–1118

url tag, 185, 194–195, 407, 1097
 version, 181
 when tag, 44, 45, 287–289, 1098, 1105
 XML tags, 185–186, 1098–1105
 jstl.jar file, **184, 436, 524, 646, 682**
 JstlView class, **577**
JTA (Java Transaction) API, 726, 735
 jta.jar file, **784, 1012**
J2EE Connector Architecture (JCA), 726
J2EE (Java 2 Enterprise Edition)
 API overview, 725–727
 container
 Applet, 722, 723
 Application Client, 722–723
 deployment descriptor, 724
 Enterprise Bean, 722–723, 727, 742
 JNDI, relation to, 735
 lifecycle management role, 724
 resource pooling role, 724
 security role, 724
 transaction management role, 724
 Web Component, 722, 723, 727, 728–729
 database, working with in J2EE environment, 738–741
 described, 722–723
 directory service operation, 735
 EJB, relation to, 301, 552, 723, 729, 741
 JDBC support, 738
 JSP-only application, using J2EE component in, 728
 JSP/servlet-based application, using J2EE component
 in, 728–729, 730–734
 Management interface, 726–727
 n-tier nature of, 722
 web.xml specification, 495
JUnit framework
 Ant, using with, 893, 902, 914–915
 authentication application, testing using, 922
 downloading, 907
 fixture, 908
 installing, 907
 setUp method, overloading, 908
 tearDown method, overloading, 908
 test, creating, 909–914
 TestCase class, 908, 917
 test-driven development, using in, 889
 TestRunner class, 908, 916
 Web site, 553, 907, 915
 junit.jar file, **914**
JVM (Java Virtual Machine)
 container use of multiple JVMs, 76
 error handling, retrieving JVM trace information for, 315

log setting, changing without restarting, 453–454
 plug-in JVM requirement, 266
 request handling role, 7
 Web server, relation to, 8

K

key message **JSTL tag attribute, 422, 1108**
 keytool utility, **831–833**
 kill-session.jsp file, **848**
Korea, localizing for, 428, 431

L

label **WebWork tag, 556**
 LabelValueBean object, **636**
language
 localizing
 Arabic, 398, 428
 button text, 405, 415
 Chinese, 400, 403–407, 411–413, 414–415, 418
 code, 396
 English, 400–401, 407, 409–410, 414, 576
 form for selecting, 401–407
 French, 398, 400, 416, 576, 588–589
 German, 576
 Spanish, 400, 407, 428
 translation, working with, 396, 407–408
 page directive language attribute, 217, 1066
 script HTML tag language attribute, 374
 tag directive language attribute, 336, 1069
 large-icon tag **directive attribute, 336, 1068**
Layout, logging, 456
 length **JSTL function, 1118, 1120**
 LengthValidator object, **697**
less than sign (<)
 action prefix, 242
 EL comparative operator, 45, 154
less than sign, equals sign (<=) EL comparative operator, 45, 154
less than sign, percent sign, at sign (<%@) directive prefix, 214
less than sign, percent sign, equals sign (<%=) scripting element prefix, 75
less than sign, percent sign, exclamation mark (<%!) scripting element prefix, 75
less than sign, percent sign (<%) scripting element prefix, 78
library, tag. See tag, library

lifecycle

- EJB lifecycle management role, 742, 744
- JSF, 690–691
- JSP, 877
- J2EE container lifecycle management role, 724
 - Servlet, 492–494
- lightweight development methodology, 886**
- `ListItem` class, **103, 110**
- link tag
 - HTML, 120
 - Struts, 610
- list, drop-down**
 - color selector, 271–272
 - HTML/XML selector, 274
 - Struts, creating using, 634–639
 - validating drop-down list field, 634–639
- `ListCategoriesAction` class, **1005, 1028–1029**
- listener
 - event listener, 715–718
 - JMeter component, 867, 871
 - Tomcat server, configuring to listen for debugger, 469
- `listItems.tag` file, **1045**
- load**
 - debugging under, 470–471
 - method, 822
 - performance load testing, 863, 868
- `loadObjectById` method, **822**
- LoadRunner software, 471, 864**
- loan calculator application, 705–711, 719**
- `LoanBean` class, **705–707, 719**
- locale attribute
 - `convertDateTime` JSF tag, 712
 - `convertNumber` JSF tag, 713
- `localErr` object, **314–315, 318**
- localization (l10n). See l10n**
- `LocalizedMessage` exception object property, **1065**
- log method, **449**
- `LogAction` class, **717–718**
- `LogChange` class, **716**
- Log4j logging framework**
 - debug output, logging using, 454–460, 461, 470, 473, 479
 - level of logging, 455–456, 458, 459
 - Web portal configuration, 951–953, 968
- logging**
 - Appender, 456, 458, 473
 - application, activity of specific, 471
 - Commons Logging library, 554, 671, 682, 784, 1012
 - `ConsoleHandler` class, using, 450, 451
 - container, changing log setting without restarting, 453–454, 459–460
 - context information, adding to log file, 471–474
 - counter value, 443–444
 - CVS Changelog, 896
 - database, to, 456
 - date information, retrieving, 457
 - described, 445
 - disabling output, 453
 - event information, retrieving, 457
 - `FileHandler` class, using, 450
 - filter, applying to, 474, 479
 - hierarchy, logger, 448, 449, 450, 455
 - inheritance, logger, 448, 449, 455
 - IP address, activity of specific, 471
 - JSF, 716–717
 - JVM, changing log setting without restarting, 453–454
 - Layout, 456
 - level
 - debugging, when, 448–449, 450, 456
 - filtering log based on, 474
 - inheritance, 450
 - JDK logger, 448–449, 450
 - Log4j logger, 455–456, 458, 459
 - performance, optimizing via choosing appropriate, 875
 - SDK logger, 451–452, 453, 454
 - `Logger` class, using, 447
 - `LogManager` class, using, 448, 450, 454
 - message, 449, 450, 456, 461, 463
 - performance
 - optimizing via minimizing logging, 875
 - outputting performance data to log, 865
 - `println` method, using, 442–445
 - production environment, 470
 - request information, retrieving, 457
 - root logger, retrieving, 455
 - SDK logging framework, using, 451–453, 454
 - Servlet
 - container role, 445–446
 - filter, Servlet-based, 479
 - session, 471–473
 - `SocketHandler` class, using, 450
 - tag library, using, 460–464
 - user, activity of specific, 471
 - utility overview, 891
 - Web portal, 951–953, 968
 - Webwork, 554
 - `web.xml` file setup, 461, 473

logging in. See authenticationlogging.properties **file**, 451, 452, 453, 454**logical operator, EL**, 153–154, 1080LoginAction **class**, 595, 596, 597–598, 602–603login-config web.xml **file element**, 519–520, 528–529login-error.html **file**, 844LoginForm **class**, 599, 600, 601, 602–603, 617–618login.html **file**, 843–844login.jsp **file**, 604LogManager **class**, 448, 450, 454LogonAction **class**, 952**logout page**, 847–849long **data type**, 157LongRangeValidator **object**, 697lookup **method**, 738**loose coupling**, 929**i18n (localization). See also i18n (internationalization)**

China, for, 400, 403–407, 411–413, 414–415, 418

described, 396–397

Egypt, for, 398, 428, 431

France, for, 398, 400, 416, 417, 431

Japan, for, 428, 431, 433

Korea, for, 428, 431

language

Arabic, 398, 428

button text, 405, 415

Chinese, 400, 403–407, 411–413, 414–415, 418

code, 396

English, 400–401, 407, 409–410, 414, 576

form for selecting, 401–407

French, 398, 400, 416, 576, 588–589

German, 576

Spanish, 400, 407, 428

translation, working with, 396, 407–408

Mexico, for, 400

Spain, for, 400, 428

Taiwan, for, 400

United Kingdom, for, 399–400, 428, 429, 431, 433

United States, for, 399–400, 428, 431

Luhn Formula, 623, 1050**M**majorVersion application **object property**, 1064ManageCartAction **class**, 1005, 1037–1039, 1042ManageCartForm **class**, 1039–1040, 1042manage-cart.jsp **file**, 1040, 1042Manager **interface**, 782many-to-one Fixture.hbm.xml **file element**, 820

Map

Java interface, 250–251

object, 345, 347, 349, 354–355, 1078–1079

mapped diagnostic context (MDC), 457**mapping applet**, 273match **Struts tag**, 612**math. See also number**

absolute value, retrieving, 173, 175

addition, 151, 1080

comparing values, 153–154

decimal point display, 152

divide-by-zero exception, 324–325, 328

division, 152, 1080

EL arithmetic operation, 151–153, 178, 1080

modulo, 152, 1080

multiplication, 152, 178, 1080

sales tax calculation, 115, 211

subtraction, 151, 1080

max function, 178maxFractionDigits **attribute**

convertNumber JSF tag, 712

formatNumber JSTL tag, 1108

maxIntegerDigits **attribute**

convertNumber JSF tag, 712

formatNumber JSTL tag, 1108

maxRows query **JSTL tag attribute**, 1115**MDB (message-driven bean)**, 745**MDC (mapped diagnostic context)**, 457**memory**

buffer

flushing, 259, 1064, 1066, 1072

out object bufferSize property, 1064

page directive buffer attribute, 1066

database, in-memory, 749, 981

performance, optimizing via caching, 874

menu

drop-down, 37, 39–40

football roster management application menu system, 799, 820–821

shopping cart application menu system, 984–985, 1024, 1025–1026, 1055

Tiles framework, formatting using

definition, 650–651, 664–668, 669–670

inheritance, 660–663, 667–668

item list, 664–665, 666, 676

Struts, passing value from, 673–678

tiles-defs.xml file configuration, 665, 669, 674, 1025

title, 666, 675

menu.html **file**, 799

MenuItem **object**, 665

menuItems **JavaBean**, 666

menu.js **file**, 133

menu-layout.jsp **file**, 665

menuTile **object**, 666

Mercury Interactive LoadRunner software, 471, 864

message

exception object property, 1065

JSTL tag, 185, 420, 421, 423, 1108–1109

logging tag attribute, 461

Spring tag, 569

Struts tag, 616

message-driven bean (MDB), 745

message.jsp **file**, 510

message.properties **file**, 1048

messages **Struts tag**, 611

messages_de.properties **file**, 576

MessageServlet **servlet**, 510

messages_fr.properties **file**, 576, 588

messagesNotPresent **Struts tag**, 613–614

messagesPresent **Struts tag**, 613–614

messages.properties **file**

Spring, 570, 571, 576, 578, 581

Struts, 599, 605, 616, 621, 629

method

declaring using declaration scripting element, 75, 76

EL-accessible function, converting static method call to,
190–193, 205–206

JavaBean, 55, 280–281

JSF method binding expression, 685

JSTL, converting method call to, 190–193, 205–206

overriding, 490–491

Mexico, localizing for, 400

Microsoft Visual SourceSafe software, 890

min **function**, 178

minFractionDigits **attribute**

convertNumber JSF tag, 712

formatNumber JSTL tag, 1108

minIntegerDigits **attribute**

convertNumber JSF tag, 713

formatNumber JSTL tag, 1108

minorVersion application **object property**, 1064

minQual **JavaBean property**, 162

minus sign (-) EL subtraction operator, 1080

mod **EL operator**, 152, 1080

Model 1 architecture, 534–535

Model 2 architecture, 536–539

Model View Controller. *See* **MVC**

modification-time check, optimizing performance via disabling, 879–880

modifyTeamInRoster **method**, 770

modifyVenueInRoster **method**, 792

movie, adding to Tiles framework layout, 660, 670,
674, 676–678

multiplication (arithmetic), 152, 178, 1080

MVC (Model View Controller)

Controller servlet

action mapping, 503

initialization parameter, accessing, 506–507

initializing, 504–505, 507

request handling, 502–503, 505, 508–509, 537,
542–543

web.xml file, 504–505

described, 534

event-driven environment, 534

HMVC, 554

JSF implementation

Controller, 683, 690

Model, 692

Model 1 architecture, 534–535

Model 2 architecture, 536–539

pattern, 550, 551

separation of application into, 534

shopping cart application Controller, 1005–1008

Spring implementation

Controller, 568, 572–574, 583, 590

Model, 574–575

View, 577–579, 588–589, 590

Struts implementation

Controller, 594–603

Model, 603

View, 604–606

Web application, 534–537

Web framework compared, 551

Web portal implementation

Controller, 966–975

View, 959–966

WebWork Dispatcher controller role, 554–556

MySQL database platform. *See also* **database**

Control Center, 752, 756

downloading, 752

driver, 739, 752–753, 1013

installing, 752

shopping cart application configuration, 1013, 1016

starting, 753

Web site, 752

N

name **attribute**

- attribute directive, 338, 346, 1069
- get Tiles tag, 656
- getAsString Tiles tag, 657
- getProperty action, 257, 1072
- importAttribute Tiles tag, 658
- insert Tiles tag, 653
- param JSTL tag, 1095, 1102
- put Tiles tag, 655
- putList Tiles tag, 656
- setProperty action, 251–252, 1071
- useAttribute Tiles tag, 657

name-from-attribute variable **directive attribute, 339, 352, 354, 1070**name-given variable **directive attribute, 339, 1070****namespace**

- EL, 173, 1082
- iterating through, 746
- JNDI, provided by, 735
- JSP tag, 22, 27, 43
- tag file, 27
- taglib directive, namespace information conveyed in, 22, 27, 152, 173, 183

native2ascii **utility, 418**navigation-rule faces-config.xml **file element, 687–688, 695, 707****NDC (nested diagnostic context), 457, 471–473****NetBeans IDE debugger**

- application, running in, 467
- Attach dialog box, 469
- Connector, 469
- object browser window, 467
- pageContext object, displaying, 467
- port, 469
- remote debugging using, 469
- Toggle Breakpoint option, 464–465

network hop, effect on performance, 863**networked configuration, Web server, 8**new session **object property, 1063**NewsFeed **class, 56–58, 162–166, 935, 938–939**NewsItem **class, 935, 939–940**news.jsp **file**

- DHTML menu coding, 141–143
- getProperty action, 57–58
- include action, 261–262
- include directive, 55, 233–234, 235–236
- JavaBean usage, 57
- personalization data, 68–69

reusing code, 72

- setProperty action, 57
- useBean action, 55, 57

news1.jsp **file, 260–261, 262, 263**NewsServiceImpl **class, 953–955**news3.jsp **file, 264**news2.jsp **file, 260–261, 262**notEqual **Struts tag, 612**notMatch **Struts tag, 612****n-tier approach to programming, 722****null value, working with in EL, 155–156, 158, 191**NullPointerException **exception, 313**NullProcessingCommand **method, 800****number. See also math**

- absolute value, retrieving, 173, 175
- data type conversion to/from, 158, 710, 711, 712–715, 1083–1084
- decimal point display, 152
- format, localizing, 396, 428, 1111
- formatting using formatNumber JSTL tag, 152, 185, 202, 427–429, 1107–1108
- random number, generating, 359
- rounding, 174–175
- validating
 - form number field, 374–375, 382, 587, 641, 918
 - JavaScript, 374–375, 382
 - JSF, 697, 698–703
 - Spring, 587
 - Struts, 641

Number Guess program, 693–696numberConverter **JSF converter, 710, 711, 712–713**NumberGuess.jsp **file, 695, 699, 703–704**NumberToCashConverter **class, 713–714**NumericUtil **class, 1032, 1035****JUnit framework, 907**

O

object. See also specific object

- business object, 81
- HTML object tag, 267, 272, 273
- implicit
 - attribute, attaching, 86–88, 162–163
 - category, 167, 1084
 - described, 45
 - form processor, 168–173
 - listing of implicit objects, 45–46
 - scope, 112–114, 168
 - tag file, invoking in, 334–335
- model, 376

object (continued)

object (continued)

- property
 - EL, accessing in, 162–167, 1078
 - nesting, 163
- Spring object relational mapping, 567
- transfer object, 276, 874–875
- object-relational impedance mismatch, 777**
- object-relational mapping (ORM), 777**
- ODBC (Open Database Connectivity), 750**
- odmg-3.0.jar **file, 784**
- OneToTenValidator **class, 698–699**
- onSubmit
 - JavaScript handler, 377–378
 - method, 580
- Open Symphony Webwork framework. See Webwork framework**
- Optimizelt software, 865**
- options **Struts tag, 609–610, 638**
- OracleAS TopLink framework, 552, 553**
- OrderItem **class, 992–994, 1020, 1035, 1053**
- OrderItem.hbm.xml **file, 1020–1021**
- OrderStatus **class, 989, 995, 1021, 1053**
- OrderStatus.hbm.xml **file, 1021**
- ORM (object-relational mapping), 777**
- otherpg.jsp **file, 321**
- otherwise **JSTL tag, 44, 1095, 1101**
- out
 - implicit object, 78, 334–335, 1064
 - JSTL tag, 185, 1094, 1101–1102
- output **action, 273**
- output.jsp **file, 731, 732**

P

- page
 - directive
 - autoFlush attribute, 1066
 - buffer attribute, 1066
 - container communication role, 85, 217
 - contentType attribute, 220, 223, 386, 1067
 - described, 85
 - error handling, 219, 220, 311–312, 321
 - errorPage attribute, 220, 1066
 - extends attribute, 217–218, 1066
 - import attribute, 218, 1066
 - index.jsp file, 222–223
 - info attribute, 219, 1066
 - isELIgnored attribute, 219, 1067
 - isErrorPage attribute, 219, 321, 1066
 - isThreadSafe attribute, 1066
 - language attribute, 217, 1066
 - pageEncoding attribute, 422, 1067
 - session attribute, 108, 218, 1066
 - shopcart.jsp file, 107
 - syntax, 1066
 - translation unit, as, 217
 - forward action attribute, 265, 1073
 - implicit object, 1065
 - include action attribute, 259, 1072
- pageContext **object**
 - accessibility, 112
 - described, 45, 1063
 - findAttribute method, 147, 252, 443–444
 - getAttribute method, 86, 247, 249
 - lifetime, 112
 - NetBeans IDE debugger, displaying in, 467
 - page property, 1063
 - request property, 1063
 - response property, 1063
 - scope, 112, 168
 - servletConfig property, 1063
 - servletContext property, 1063
 - session property, 1063
 - superclass, 87
- pagecontext.errorData **object, 322, 325, 326**
- pagecontext.exception **object, 322, 323, 325, 326, 327**
- pageEncoding **attribute**
 - page directive, 422, 1067
 - tag directive, 336, 1069
- page-encoding web.xml **file element, 516**
- pageScope **object, 45, 168, 1085**
- paint **method, 270**
- param
 - action
 - applet, using with, 271
 - forward action, using with, 265–266
 - include action, using with, 264, 265–266
 - params action, using with, 265, 267
 - request parameter, passing using, 264
 - syntax, 265, 1073
 - JSTL tag, 68, 1095, 1102, 1109, 1114–1115
 - object, 45, 46, 168, 1086
 - setProperty action attribute, 252, 1072
- param-name web.xml **file element, 505**
- params **action**
 - applet, using with, 271
 - body, 267
 - param action, using with, 265, 267

- plug-in, using with, 267
- syntax, 267, 1073
- param-value web.xml **file element**, 505
- paramValues **object**, 46, 168, 1086
- parse **JSTL tag**, 1102–1103
- parseDate **JSTL tag**, 1109–1110
- parseLocale **attribute**
 - parseDate JSTL tag, 1110
 - parseNumber JSTL tag, 1111
- parseNumber **JSTL tag**, 1110–1111
- password**
 - database
 - access password, 756, 1116
 - storing password in, 748
 - encoding, 827
 - setDataSource JSTL tag password attribute, 1116
 - SSL key, 833
 - Struts password tag, 609
 - Tomcat server, 15
 - validating, 609, 620–622
 - WebWork password tag, 556
- PATH **variable**, 13
- pattern**
 - architectural, 551
 - convertDateTime JSF tag pattern attribute, 712
 - convertNumber JSF tag pattern attribute, 713
 - design pattern, 275, 920, 932, 933
 - formatDate JSTL tag pattern attribute, 1107
 - formatNumber JSTL tag pattern attribute, 1107
 - MVC, 550, 551
 - parseDate JSTL tag pattern attribute, 1110
 - parseNumber JSTL tag pattern attribute, 1111
 - URL, 515
 - Web framework, 550
- PatternLayout **object**, 456–457
- payment **method**, 710
- percent sign, greater than sign (%>)**
 - directive suffix, 214
 - scripting element suffix, 75, 77, 78
- performance**
 - baseline, 865, 867
 - bottleneck, identifying, 865
 - caching, optimizing via, 874
 - CHO testing, 864
 - database connection pooling, optimizing via, 874
 - deployment-time, optimizing during, 875–882
 - designing for optimal, 872
 - development-time, optimizing during, 872–875
 - graphing, 865
 - HTTP proxy server, 868
 - instrumenting code, 865
 - load testing, 863, 868
 - logging
 - optimizing performance via minimizing, 875
 - outputting performance data to log, 865
 - modification-time check, optimizing via disabling, 879–880
 - network hop, effect on, 863
 - precompiling JSP via, 876–879
 - production environment, testing in, 880
 - reporting, 865, 871
 - request handling, 867–868, 869–870, 871–872
 - response time, 862
 - scalability, 862
 - scope, optimizing via assigning appropriate, 874
 - server proximity, effect on, 863, 868
 - session overhead, optimizing via reducing, 873–874
 - stress testing, 863
 - tag pooling, optimizing via, 880–881
 - threading, 868–869, 871
 - throughput, 862, 871
 - traffic, bursty, 862
 - transaction time, 862
 - transfer object, optimizing using, 874–875
 - user
 - perspective regarding performance, 863
 - simulating concurrent users when testing, 867, 868–869, 871
 - Web server, optimizing via deploying static content from, 881–882
- period (.) EL operator**, 166, 250
- persistence**
 - BMP, 744, 745
 - CMR, 744
 - database, 782, 784–786, 802, 932–933
 - EJB, 552, 744
 - framework, 552
 - Hibernate framework, configuring using, 782, 784–786, 802
 - shopping cart application, 1000–1005
 - Web portal personalization, 932–935
- Pfaffenberger, Bryan (HTML, XHTML, and CSS Bible, Third Edition)**, 267
- plug-in**
 - described, 266
 - fallback action, using with, 267, 268, 272
 - JVM requirement, 266
 - location, 266
 - params action, using with, 267
 - server role, 266

plugin action

plugin **action**

- applet, using with, 268–273
- described, 267
- fallback action, using with, 267, 268, 272
- HTML generation by, 272–273
- index.jsp file, 270–271
- syntax, 267, 1074
- type attribute, 267, 1074

plus sign (+)

- EL addition operator, 1080
- JavaScript regular expression operator, 375

pop method, 473

portal application. See Web portal application

- portal-advt.jsp file, 963, 965
- portal-body.jsp file, 963, 964
- portal.css file, 52–53, 127–128, 132
- portal-header.jsp file, 963, 964
- portal-layout.jsp file, 963–964
- portalpage.jsp file, 963
- POST **HTTP method, 37–38, 490, 491**

precision specifier, PatternLayout object, 456–457

predictive development methodology, 886

prefix attribute

- bundle JSTL tag, 1106
- message JSTL tag, 422
- taglib directive, 43, 182, 225, 337, 1067

PreparedStatement **class, 754, 770**

prepareForBrowseCategory **method, 1008, 1032**

presentation-layer technology, 28, 74

Principal **object, 830**

println **method**

- PrintWriter class, 11
- System object, 442–445

println.tag **file, 338**

PrintWriter **class, 11, 460, 492**

private-page.jsp **file, 839, 840, 841, 854**

processAction **method, 718**

processFixtureAdd **method, 821**

processFixtureList **method, 822**

ProcessingCommand **interface, 795, 800**

processRequest **method, 488, 491, 508**

processRosterAdd **method, 765**

processRosterDelete **method, 765**

processRosterList **method, 765**

processRosterModify **method, 765**

processValueChange **method, 717**

procform.jsp **file, 407, 410, 413, 423–424**

procprod.jsp **file, 255–256, 257, 274, 370–371, 378**

prodform.jsp **file, 370–371, 372–374, 380–382**

prodhtml.jsp **file, 274**

Product

- JavaBean, 379
- object, 82, 83

production environment

- debugging in, 441–442, 469–474
- logging in, 470
- performance, testing in, 880

production system, 441–442, 469–474

product.jsp **file, 211**

prodxml.jsp **file, 274**

Professional Apache Tomcat 5 (Chopra), 868

Professional Hibernate (Gradecki and Pugh), 823

Professional Java Tools for Extreme Programming (Hightower, et al), 903

.properties **files, 416–418, 451**

property

- attribute
 - getProperty action, 257, 1072
 - set JSTL tag, 1097
 - setProperty action, 252, 1071
- WebWork tag, 562, 564

prototyping, HTML, 53

public-page.jsp **file, 839**

Publisher **class, 935, 940–941**

Pugh, Eric (Professional Hibernate), 823

put **Tiles tag, 650, 652, 654–655**

putList **Tiles tag, 655–656, 665**

Q

query **JSTL tag, 1115**

Quest Probe software, 865

R

radio **tag**

- Struts, 609
- WebWork, 556

ramp-up period, thread, 871

Random **class, 440–441**

random number, generating, 359

Rational Clearcase software, 890

Rational Performance Tester software, 864

Rational Unified Process (RUP), 888

Realm **authentication policy, 828**

redirect **tag**

- JSTL, 1095–1096
- Struts, 612–613

redirectPort server.xml **file attribute, 841**

red.jsp **file, 502, 505, 509**

- refactoring, 887**
- reference data, 582, 586**
- registration.jsp file, **959, 961–962, 970**
- regression testing, 889, 891**
- regular expression, 375**
- rejectValue method, **575**
- releaseResources method, **765, 770, 792**
- reloading web.xml file attribute, **880**
- remaining out object property, **1064**
- Remote ⇄ Import (CVS), 905**
- Remote Method Invocation-Internet Inter-ORB Protocol (RMI-IIOP) API, 725**
- remove JSTL tag, **185, 206, 1096**
- replace JSTL function, **344, 1118, 1120–1121**
- replay method, **696**
- request
 - object, 87, 112, 334, 1062
 - pageContext object request property, 1063
- request handling**
 - action
 - forwarding request using, 242, 293
 - output of request, including in, 242
 - role in request handling, 34
 - CGI, 5–7
 - container role, 11–12, 22, 218, 248
 - cookie information available with request, accessing, 46
 - encoding, 425–426, 1111
 - error handling, request-time, 236, 312–314, 315–320, 322–323
 - football roster management application, 773, 821
 - form submission URL request, 37–38, 39–40, 42
 - forwarding request
 - action, using, 242, 293
 - auction Web site application, 285, 287–288, 289, 290–294, 371–372
 - Controller servlet, 505, 508–509, 542–543
 - error page forwarding, 321–322, 323
 - forward action, using, 264–265, 274, 293
 - front controller, using, 284–288, 371–372
 - getProperty action role, 252–254
 - HTTP request, 490–491, 868–870, 872
 - include action, triggering by incoming request, 263
 - internationalization request parameter encoding, 425–426
 - JavaBean
 - instance, attaching to, 57
 - passing request parameter to, 253
 - property, filling with request parameter, 292
 - property, matching request parameter with, 256
 - JSF, 689–691, 693
 - JVM role, 7
 - localization request parameter encoding, 425–426
 - logging request information, retrieving, 457
 - Model 1 architecture, 535
 - Model 2 architecture, 536–539
 - page initialization, acquiring global resource for request handling during, 76
 - page processing, request-phase, 215–216
 - param action, passing request parameter using, 264
 - parameter
 - accessing parameter passed with request, 46
 - filling JavaBean property with request parameter, 292
 - internationalization request parameter encoding, 425–426
 - matching request parameter with JavaBean property, 256
 - passing request parameter using param action, 264
 - passing to JavaBean, 253
 - performance, testing, 867–868, 869–870, 871–872
 - scope, 45, 112, 300, 1061, 1085
 - scripting element request time expression, 77
 - servlet
 - container role, 492
 - Controller servlet, 502–503, 505, 508–509, 537, 542–543
 - HTTP, 490–491
 - instance, creating separate for each request, 492
 - passing request to servlet, 489
 - setProperty action role, 253, 256
 - shopping cart application, 97
 - Struts, 594, 615
 - transferring request to another JSP, 264–265
 - useBean action role, 248
 - Web server, 4
- RequestDispatcher object, **208, 508–509, 542–543**
- requestEncoding JSTL tag, **424, 425, 1111**
- requestScope object, **45, 545, 1085**
- required attribute directive attribute, **338, 1069**
- requirement analysis, 930–931**
- ResetLogger.jsp file, **453, 454**
- resource bundle, Java 2, 414–417, 420, 434, 1106, 1111**
- resource-ref web.xml file element, **522, 740, 741**
- response
 - object, 333, 1062–1063
 - pageContext object response property, 1063
- responseComplete method, **692**
- res-ref-name web.xml file element, **740**
- result transform JSTL tag attribute, **1104**
- ResultSet class, **755**

returnvalue.tag file, **339, 341**

Rich Site Summary (RSS), 926–929, 953

RMI-IIOP (Remote Method Invocation-Internet Inter-ORB Protocol) API, 725

role **attribute**

definition Tiles tag, 654

get Tiles tag, 656

getAsString Tiles tag, 657

insert Tiles tag, 653

put Tiles tag, 655

putList Tiles tag, 656

RollDice.jsp file, **466–467, 479**

Rome RSS library, 953–955

roster.jsp file, **759–760**

RosterManager **interface, 765, 770–771, 787, 811**

RosterManagerFactory **object, 766, 771–772**

Round **class, 802–803, 820**

round **Java method, 175**

Round.hbm.xml file, **803–804**

round-input.jsp file, **778–779**

round-process.jsp file, **781**

RSS (Rich Site Summary), 926–929, 953

rtexprvalue **attribute**

attribute directive, 338, 1069

highlighttableext.tag file, 352

runtime

bug, 437

error, 305, 313

RUP (Rational Unified Process), 888

S

SAAJ (SOAP with Attachments for Java), 726

safeClose **method, 770**

sales tax calculation, 115, 211

saveOrUpdate **method**

football roster management application, 792

shopping cart application, 1004–1005, 1019

SaveProfileAction **class, 974–975**

SaveRegistrationAction **action, 970**

scalability, 862

scope

application, 46, 113, 778, 1061–1062, 1086

dump tag scope attribute, 461

formatNumber JSTL tag scope attribute, 1108

if JSTL tag scope attribute, 1091, 1101

import JSTL tag scope attribute, 1092

invoke action scope attribute, 348

JavaBean instance, 57, 244

locale, 421, 422

message JSTL tag scope attribute, 422, 1109

object, implicit, 112–114, 168

page, 112, 168, 332, 1060–1061, 1085

pageContext object, 112, 168

parse JSTL tag scope attribute, 1103

parseDate JSTL tag scope attribute, 1110

parseNumber JSTL tag scope attribute, 1111

performance, optimizing via assigning appropriate, 874

query JSTL tag scope attribute, 1115

remove JSTL tag scope attribute, 1096

request, 45, 112, 300, 1061, 1085

session, 46, 112, 333, 1061, 1085

set JSTL tag scope attribute, 191, 1097, 1103

setBundle JSTL tag scope attribute, 1111

setDataSource JSTL tag scope attribute, 1116

setLocale JSTL tag scope attribute, 421, 1112

setTimeZone JSTL tag scope attribute, 1113

tag file, 332–335

Tiles framework, 650, 654, 657–658

transform JSTL tag scope attribute, 1104

update JSTL tag scope attribute, 1117

url JSTL tag scope attribute, 1097

useBean action scope attribute, 244, 246, 247, 1071

variable, 191, 204, 206, 209, 339–341

scopeDom parse **JSTL tag attribute, 1103**

scope.tag file, **333**

script **HTML tag, 121, 374**

scripting

described, 35

EL

element alternative, as, 146

independence of scripting provided by, 36

element

class definition, placement in, 79

compilation, 305

declaration, 35, 75–77, 79, 189–190, 1075

described, 35

error handling, 305–309

expression, 35, 77, 79, 1076

JavaBean, using in, 249

scriptlet, 35, 78, 79

invalid, declaring in web.xml file, 516

JSTL, converting scripting application to, 186–195

language

default, 217

page directive, specifying in, 217

script HTML tag, specifying in, 374

tag directive, specifying in, 336

variable, 75, 191

- scripting-invalid web.xml file element, 516
- scriptlet**
 - avoiding, 919
 - debugging, 439–441
 - JavaBean
 - accessing from scriptlet, 247
 - method, invoking using scriptlet, 280, 281
 - scripting element, 35, 78, 79
 - syntax, 1075
- SDK (Software Development Kit) logging framework, 451–453, 454**
- searchByKeyword method, 956
- searching**
 - counting search results, 351–354
 - highlighting search result, 349–351
 - JavaBean attribute, searching for when instantiating, 246–247
 - regular expression, 375
 - substring, 1118–1119, 1121–1122
 - tag text, searching and replacing, 342–344
- Secure Sockets Layer. See SSL**
- security. See also specific security mechanism**
 - confidentiality, 830–831
 - container role, 724
 - data integrity, 830–831
 - declarative, 829
 - JSF, 690
 - need, assessing, 825–826
 - programmatically, 829
 - user role, verifying, 830
- security-constraint web.xml file element
 - auth-constraint subelement, 520, 829
 - described, 519
 - file access, restricting using, 690
 - URL mapping, 828
 - user-data-constraint subelement, 520
 - web-resource-collection subelement, 520, 838, 840
- SecurityFilter class, 857–858, 859
- security-role web.xml file element, 521, 528
- Segue Silk Performer software, 864**
- select
 - attribute
 - forEach JSTL tag, 1100
 - if JSTL tag, 1101
 - out JSTL tag, 1102
 - set JSTL tag, 1103
 - tag
 - Struts, 609–610, 638
 - WebWork, 556
- separation of concerns application design, 331–332
- Seraph framework, 827**
- serializing JavaBean, 276**
- The Server Side Web site, 550**
- serverInfo application object property, 1064
- server.xml file, 833–834, 841–842, 852–853
- service method, 489, 494, 500, 734
- service (software component)**
 - described, 929
 - locator design pattern, 955
 - Web service, 929–930, 956
- servlet**
 - API, 8, 17
 - compiling, 470, 484, 486–487
 - concurrency considerations, 479
 - configuration object, retrieving, 489
 - container, 8–9, 12, 445–446, 453, 492
 - context, 76–77, 85–86, 87, 446, 508
 - Controller servlet
 - action mapping, 503
 - initialization parameter, accessing, 506–507
 - initializing, 504–505, 507
 - request handling, 502–503, 505, 508–509, 537, 542–543
 - web.xml file, 504–505
 - debugging, 470
 - declaring, 497–500
 - destroying, 488, 492–493, 494
 - DTD support, 496
 - form processing, servlet/JSP-based, 730–734
 - generic, 489
 - HTML, generation by, 11
 - HTTP
 - decoding, 490
 - request handling, 490–491
 - information about, retrieving, 489, 490
 - initialization parameter, accessing, 506–507
 - initializing, 488, 492–494, 504–505, 507
 - Java class, relation to, 484–485
 - JSP as, 484–485
 - J2EE component, using in JSP/servlet-based application, 728–729, 730–734
 - lifecycle, 492–494
 - logging
 - container role, 445–446
 - filter, servlet-based, 479
 - method, overriding for, 490–491
 - need for, 503
 - path, 208

servlet (continued)

servlet (continued)

- request handling
 - container role, 492
 - Controller servlet, 502–503, 505, 508–509, 537, 542–543
 - forwarding incoming request, 505, 508–509
 - HTTP, 490–491
 - instance, creating separate for each request, 492
 - passing request to servlet, 489
- snoop application, 475–478
- specification, 496, 512, 827
- steps in servlet development, 9–10
- Struts servlet, 593, 594
- threading, 494
- timestamp, creating using, 734
- URL mapping, 494, 498–500
- Webwork servlet Dispatcher, 555
- web.xml file
 - BasicServlet class, 495–496
 - Controller servlet, 504–505
 - form-processing servlet, 733, 735–736
 - servlet element, 496, 505, 522
 - servlet-mapping element, 498–500, 502, 505, 522, 572
- Servlet **interface**
 - BasicServlet class implementation, 489–490
 - destroy method, 488, 494
 - getServletConfig method, 489
 - getServletContext method, 76–77, 85–86
 - getServletInfo method, 489
 - HttpServlet class implementation, 489–490
 - init method, 488, 494, 505
 - service method, 489, 494, 500
- servlet web.xml **file element, 505, 522**
- servlet-api.jar **file, 486**
- ServletConfig **object, 489, 507**
- servletConfig pageContext **object property, 1063**
- servletContext
 - interface, 87, 446, 508
 - pageContext object property, 1063
- servletContextName application **object property, 1064**
- ServletDispatcher **Webwork Dispatcher, 555**
- servlet-mapping web.xml **file element, 498–500, 502, 505, 522, 572**
- servletName config **object property, 1065**
- ServletRequest **interface, 87, 830**
- ServletResponse **interface, 492**

session

- attribute, 108, 110, 111–114, 218
- container role in session tracking, 218
- cookie, managing using, 108–109
- creating, 473
- database session management, 107–114, 791, 792, 1000–1002, 1016–1018
- described, 107
- EJB, session, 743–744
- factory, 791
- HTTP session authentication, 826
- implicit object, 87, 112, 334, 1063–1064
- JavaMail Session object, 735
- killing, 848
- logging, 471–473
- NDC stack, pushing session ID onto, 473
- page access counter, session-specific, 531
- page directive session attribute, 108, 218, 1066
- pageContext object session property, 1063
- performance, optimizing via reducing session overhead, 873–874
- scope, 46, 112, 333, 1061, 1085
- size of session object, reducing, 873
- timeout, 873–874
- SessionFactory **object**
 - football roster management application, 791
 - shopping cart application, 1000–1001
- session.jsp **file, 847–848**
- SessionProvider **class, 1000–1002**
- sessionScope **object, 46, 1085**
- set **JSTL tag**
 - constant, declaring using, 201–202
 - EL-accessible function, converting static method call to using, 190–191
 - JavaBean property value, retrieving using, 299
 - property attribute, 1097
 - scope attribute, 191, 1097, 1103
 - select attribute, 1103
 - syntax, 1096–1097, 1103
 - target attribute, 1097
 - useBean action compared, 258–259
 - value attribute, 1097
 - var attribute, 1097, 1103
- setAttribute **method, 86, 599**
- setBundle **JSTL tag, 1111–1112**
- setCreditDecision **method, 1052**
- setDataSource **JSTL tag, 741, 1116**
- setFirstName **method, 278**

- setLevel **JSP, 448**
- setLocale **JSTL tag, 420, 421, 1112**
- setProperty **action**
 - * (asterisk) value, 252, 256
 - body, 251
 - described, 243
 - error handling, 313, 316
 - form processing using, 255–256
 - index.jsp file, 251, 252, 254–255, 316
 - name attribute, 251–252, 1071
 - news.jsp file, 57
 - param attribute, 252, 1072
 - property attribute, 252, 1071
 - request handling role, 253, 256
 - syntax, 1071
 - value attribute, 252, 1072
 - variable, dependence on generated, 258
- setTimeZone **JSTL tag, 1112–1113**
- setUp **method, 908, 911, 916**
- severe **function, 449**
- shopcart.jsp **file, 107, 199–201, 202–203, 205–206, 211**
- shopping cart application. See also Web storefront application**
 - AddItemAction class, 1005, 1034–1035, 1036
 - addItemToCart method, 1035
 - addOrIncrementItem method, 1035–1036
 - Ant build script, 1010, 1011–1014
 - BaseEntity class, 990, 1032
 - Book class, 996–997
 - Book.hbm.xml file, 1018–1019
 - BookstoreConstants class, 1054
 - BookstoreController class, 1005–1008, 1029, 1032, 1035, 1052
 - BrowseCategoryAction class, 1005, 1030–1032
 - build.xml file, 1010, 1011–1014
 - Buy hyperlink, 90–92, 95, 97, 110, 203
 - cartstatus.tag file, 1027
 - Category class, 995–996, 1018
 - category-browse.jsp file, 1033
 - Category.hbm.xml file, 1019
 - category-list.jsp file, 1030
 - Checkout link, 985, 1042
 - CheckoutAction class, 1005, 1043–1044
 - checkoutcompleted.jsp file, 1054
 - checkout.jsp file, 1044, 1045–1047
 - Clear the Cart hyperlink
 - JSTL-based, 198, 203
 - script-based, 101, 102, 110
 - clearCartWhenApproved method, 1053–1054
 - CompleteOrderAction class, 1005, 1043, 1050–1051
 - Controller, 1005–1008
 - credit card processing, 988, 1048, 1050, 1052
 - CustomerOrder class, 989, 990–992, 1051, 1052, 1053
 - CustomerOrder.hbm.xml file, 1019–1020
 - database
 - authentication, 1016
 - creating value, 1004
 - entity definition, 989–990
 - field list, 988–989
 - finding value by ID, 1004
 - Hibernate configuration, 1000–1002, 1003–1004, 1016–1019
 - listing all values in, 1003
 - MySQL configuration, 1013, 1016
 - session management, 107–114, 1000–1002
 - updating value, 1004
 - DefaultAction class, 1005
 - directory structure, 1009–1010
 - doAction method, 1006, 1008, 1029, 1052
 - EntityManager class, 1000, 1002–1003, 1004, 1029
 - EntityManagerFactory class, 1000, 1002, 1004–1005, 1029
 - findAll method, 1003
 - findById method, 1004, 1005, 1032
 - getBookCount method, 1030
 - getCategory method, 1018
 - getOrCreateCart method, 1052
 - getOrder method, 1051–1052
 - getOrderItem method, 1035
 - home page, 90, 95
 - initialize method, 1008
 - initializeForm method, 1039
 - internationalizing, 1055
 - JSTL-based, 195–199, 203
 - layout using Tiles, 1022–1023, 1024–1026, 1029, 1040, 1054
 - ListCategoriesAction class, 1005, 1028–1029
 - listitems.tag file, 1045
 - Manage Your Shopping Cart screen, 984, 1036–1042
 - ManageCartAction class, 1005, 1037–1039, 1042
 - ManageCartForm class, 1039–1040, 1042
 - manage-cart.jsp file, 1040, 1042
 - menu system, 984–985, 1024, 1025–1026, 1055
 - message.properties file, 1048

shopping cart application (continued)

shopping cart application (continued)

- NumericUtil class, 1032, 1035
- OrderItem class, 992–994, 1020, 1035, 1053
- OrderItem.hbm.xml file, 1020–1021
- OrderStatus class, 989, 995, 1021, 1053
- OrderStatus.hbm.xml file, 1021
- persistence, 1000–1005
- prepareForBrowseCategory method, 1008, 1032
- price display, 92, 98, 101–102, 197
- quantity display, 92
- request handling, 97
- Return to Shopping hyperlink, 98, 99, 197
- sales report, 1055
- sales tax calculation, 115, 211
- saveOrUpdate method, 1004–1005, 1019
- SessionFactory object, 1000–1001
- SessionProvider class, 1000–1002
- setCreditDecision method, 1052
- ShoppingCart class, 990, 998–1000, 1026, 1035–1036, 1040–1041
- standard-layout.jsp file, 1024–1025
- status, 989, 995, 1021, 1026–1028
- Struts action hierarchy, 1005
- Tomcat configuration, 1010
- updateCart method, 1042
- use case analysis, 984–985
- validation, 1022–1023, 1048–1050
- web.xml file, 1023
- ShoppingCart **class**, **990, 998–1000, 1026, 1035–1036, 1040–1041**
- Short **data type**, **158, 160**
- showbid.jsp **file**
 - bid result display, 296, 297, 299, 300–301
 - request, forwarding to, 285, 287–288, 292, 293–294
- showDate.jsp **file**, **526–527, 528–529**
- showerr.jsp **file**, **321, 322, 323, 325–326**
- showglob.jsp **file**, **114**
- showportal.jsp **file**
 - address, 37
 - content, independence from, 46–47, 50–51
 - DHTML menu coding, 139
 - form submission role, 42
 - include directive, 54–55
 - portal.css, embedding in, 132
 - user preference selection coding, 129–131
 - username parameter, 67–68
- showToolBar **function**, **143**
- shutdown.sh **file**, **16**
- Silk Performer software**, **864**
- Simple Object Access Protocol (SOAP)**, **929, 956**
- simple-body.jsp **file**, **649**
- SimpleController **servlet**
 - action parameter, 537, 538
 - coding, initial, 538–539
 - Customer object, 539–540, 541, 546
 - CustomerManager object, 539, 541–542, 545, 546
 - dispatch method, 542, 543
 - displayCustomer.jsp file, 545, 547
 - displaylist action, 537, 538–539
 - displayList.jsp file, 542–544
 - doPost method, 542
 - getCustomer method, 545
 - getCustomers method, 542
- SimpleDateFormat **class**, **360**
- simple-footer.jsp **file**, **649**
- SimpleFormatter **class**, **451–452**
- SimpleFormController **object**, **573–574, 582**
- simple-header.jsp **file**, **649**
- simple-include-index.jsp **file**, **651–652**
- simple-insert-index.jsp **file**, **648, 649**
- SimpleLayout **class**, **456**
- simplelayout.jsp **file**, **648–649**
- simplelayout-title.jsp **file**, **659**
- SimpleMenuItem **object**, **676**
- simple-menu.jsp **file**, **649**
- simpletable.tag **file**, **345–348, 356**
- simple-xmldef-index.jsp **file**, **652**
- sin **function**, **178**
- slash (/)
 - EL division operator, 152
 - JavaScript regular expression delimiter, 375
 - web.xml file url-pattern element operator, 515
- slash, asterisk (/*) **URL mapping operator**, **498, 515**
- slash, d (/d) **JavaScript regular expression operator**, **375**
- slash, greater than sign (/>) **action suffix**, **242**
- Slashdot Web site, **826, 926–927**
- small-icon tag **directive attribute**, **336, 1068**
- Smalltalk **programming language**, **534**
- SMP (Symmetric MultiProcessor)**, **76**
- snoop application**, **475–478**
- SOAP (Simple Object Access Protocol)**, **929, 956**
- SOAP with Attachments for Java (SAAJ)**, **726**
- SocketHandler **class**, **450**
- Software Development Kit (SDK) logging framework**, **451–453, 454**
- sort **WebWork tag**, **557**
- Spain, **localizing for**, **400, 428**
- span tag, **376–377**

specification

JavaBean, 276
 JSP, 17, 18
 servlet, 496, 512, 827
 web.xml, 495

split **JSTL function, 1118, 1121**

Spring framework

bind tag, 569, 578, 587
 build.xml file, 570–571
 Command, 568
 context, 567
 directory structure, 570
 Dispatcher, 572
 downloading, 570
 form, processing
 Controller, 572–574, 583, 590
 i18n, 576, 579, 588–589
 Model, 574–575
 validation, 572, 575–576, 578–579, 584–587
 View, 577–579, 588–589, 590
 hasBindErrors tag, 569
 htmlEscape tag, 569
 i18n, 569, 576, 579, 588–589
 installing, 570–572
 message tag, 569
 messages.properties file, 570, 571, 576, 578, 581
 MVC implementation
 Controller, 568, 572–574, 583, 590
 Model, 574–575
 View, 577–579, 588–589, 590
 object relational mapping, 567
 theme tag, 569
 transform tag, 569
 Validator, 568, 572, 575–576, 578–579, 584–587
 Web site, 554, 570

spring-servlet.xml **file, 572–573, 576, 577**

SQL (Structured Query Language). See also database

CREATE command, 756
 date parameter, passing to SQL statement, 1114
 GRANT command, 756
 Hibernate, SQL functionality provided by, 819
 JDBC support, 749, 753–754
 JSTL SQL tags, 185–186, 778–781, 1113–1118
 statement
 callable, 754
 prepared, 754, 770
 static, 754
 update JSTL tag sql attribute, 1117

SQLException **exception, 770**

sqrt **function, 178**

SSL (Secure Sockets Layer)

certificate
 authentication, client certificate, 828, 849–855
 CA, obtaining from, 831, 850
 creating, 831–833
 Digital ID, 850
 displaying in Web browser, 736, 851, 852
 installing in Web browser, 850–851
 personal certificate, 850
 JSSE requirement, 831
 key
 creating, 831–833
 password, 833
 private, 852
 Tomcat configuration, 833–837, 852–853

stackTrace **property**

 localerr object, 315, 318
 pageContext.exception object, 326

staff-roster.jsp **file, 858**

Standard Tag Library, 36, 43

standard.jar **file, 184, 436, 524, 646, 682**

standard-layout.jsp **file, 1024–1025**

startRow query **JSTL tag attribute, 1115**

startsWith **JSTL function, 1119, 1121**

startup.sh **file, 16**

Statement **class, 754**

stderr.log **file, 452**

stdout.log **file, 443**

step forEach **JSTL tag attribute, 1093, 1100**

stepping through code, 468

storefront application. See Web storefront application

stress testing, 863**string. See text**

String

 data type, 157–158
 object, 345

Structured Query Language. See SQL**Struts framework**

 action, 593, 594–599, 671–673, 1005
 authentication using, 595–596, 597–599, 600–606, 641
 build.xml file, 625–626
 checkbox tag, 609
 community, 592
 define tag, 614–615
 documentation, 592
 downloading, 592

Struts framework (continued)

- drop-down list, creating using, 634–639
- equal tag, 611–612
- errors tag, 610
- form, working with in
 - index.jsp file, 628, 634–635
 - JavaBean, 599–600, 604–606, 611, 617–619, 959
 - submission, 606, 610
 - translation from HTML, 600
 - validation, 611, 617–623, 628–629
- forward tag, 612
- hidden tag, 609
- i18n, 606–607, 616
- include tag, 615–616
- iterate tag, 613
- JavaBean
 - comparing JavaBeans using Struts, 611–612
 - defining using Struts, 614–615
 - form JavaBean, 599–600, 604–606, 611, 617–619, 959
 - request response, setting to JavaBean value using Struts, 615
 - writing JavaBean value using Struts, 615
- javascript tag, 611
- JSF compared, 681, 718–719
- link tag, 610
- match tag, 612
- message tag, 616
- messages tag, 611
- messagesNotPresent tag, 613–614
- messagesPresent tag, 613–614
- messages.properties file, 599, 605, 616, 621, 629
- MVC implementation
 - Controller, 594–603
 - Model, 603
 - View, 604–606
- notEqual tag, 612
- notMatch tag, 612
- options tag, 609–610, 638
- password tag, 609
- popularity, 592
- radio tag, 609
- redirect tag, 612–613
- request handling, 594, 615
- select tag, 609–610, 638
- servlet, 593, 594
- shopping cart application, 1005
- submit tag, 610
- tag library, 607
- text tag, 608
- textarea tag, 609
- Tiles, using with
 - configuring tile using Struts, 671
 - definition, configuring as action forward, 671–673
 - localization, 679
 - passing value from Struts to Tiles, 673
 - struts-config.xml file configuration, 671, 676
 - tiles-defs.xml file configuration, 671, 674
 - validation, 611, 617–623, 628–629, 1022–1023, 1048–1050
 - Web portal configuration, 949–950, 959, 966–967
 - Web site, 553, 592
 - write tag, 615
- struts-base **application, 625–630**
- struts-config.xml **file**
 - action-mapping element, 596, 619, 630, 636–637, 671–673
 - BrowseCategoryAction class configuration, 1031
 - directory, 594
 - DynaValidatorForm class configuration, 628
 - global-forwards element, 598–599
 - ListCategoriesAction class configuration, 1028
 - ManageCartForm class configuration, 1039
 - message-resources element, 607, 629
 - TestAction class configuration, 630
 - testForm JavaBean configuration, 632
 - Tiles configuration, 671, 676
 - Validator plug-in configuration, 620, 628–629
- struts-tiles.tld **file, 646**
- style **HTML tag, 120**
- submit **Struts tag, 610**
- substring **JSTL function, 1119, 1121**
- substringAfter **JSTL function, 1119, 1121**
- substringBefore **JSTL function, 1119, 1122**
- subtraction (arithmetic), 151, 1080**
- success.jsp **file, 577, 580–581, 585**
- Sun Microsystems Web site, 831, 892**
- supports **method, 575**
- switch...case **Java construct, replacing with choose JSTL tag, 204**
- Symmetric MultiProcessor (SMP), 76**
- synchronization**
 - concurrency considerations when debugging, 479
 - Java attribute, synchronizing Java reference with attached, 249–252
- System **object println method, 442–445**
- system testing, 891**
- systemId parse **JSTL tag attribute, 1103**

T

tabbedPane **WebWork tag, 556**

table **WebWork tag, 557**

tag. See also JSTL (JavaServer Pages Standard Tag Library)

action

- attribute role in passing value to action, 345
- including tag in, 242
- relation to tag, 34, 242
- tag file action, 242

alias, 357

attribute

- action, role in passing value to, 345
- dynamic, 336, 354–355
- fragment attribute, 338, 348, 350, 1069
- tag file, 337–338, 345
- XML tag, 34

body, 34, 341–344

Calendar object display, formatting using, 360

custom, 342–344, 345–348, 359–360

directive, 335–336, 354, 1068–1069

directory, 224, 225

empty, 22, 34

file

- action, tag file, 242
- attribute, 337–338, 345
- date-display tag file, 330–331, 336–337
- described, 329–330
- directive, using, 215, 335–336
- directory, 184, 224, 225, 330
- implicit object, invoking, 334–335
- include directive, 337
- JAR file, packaging in, 355–359
- modularity, role in creating, 331
- namespace, 27
- packaging flexibility, 332
- reusing, 331
- scope, 332–335
- separation of concerns application design, 331–332
- simplicity, 332
- variable directive, 339–341

HTML, embedding in, 28

icon, associating with, 336

language, specifying, 336

library

- choose JSTL tag, using with, 226, 228
- container instruction provided by, 214, 223–224
- include construct, accessing using, 229–230
- index.jsp file, 226, 227–228

JSF, 684, 685, 703–704

JSTL declaration, 152, 190

logging using, 460–464

namespace information conveyed in, 22, 27, 152, 173, 183

path, 22, 224, 330

prefix, 43, 182, 225, 337, 1067

Struts tag library, 607

thread-safe, 494

URI, 357

validation, using in client-side, 382–386

version, 357

Webwork Custom Tag Library, 556–557

location, 224, 225

name, 34, 357

namespace, 22, 27, 43

number, generating random using, 359

pooling custom tags, optimizing performance via, 880–881

prefix, 43, 182, 225, 337, 1067

table, generating using custom, 345–348

template, placement within, 22

text, searching and replacing, 342–344

XML, 34

.tag **files, 28, 224**

Tag Library Descriptors (TLD), 173–174, 182–183, 355–356

tagdir taglib **directive attribute, 225, 1067**

taglib **directive**

choose JSTL tag, using with, 226, 228

container instruction provided by, 214, 223–224

described, 21–22

function-taglib.tld file, 176–177

include construct, accessing using, 229–230

index.jsp file, 226, 227–228

JSTL declaration, 152, 190

logging setup, 461

namespace information conveyed in, 22, 27, 152, 173, 183

path, 22, 224, 330

prefix attribute, 43, 182, 225, 337, 1067

syntax, 33, 1067

tagdir attribute, 225, 1067

uri attribute, 43, 176, 183, 191, 224–225

web.xml file taglib element, 176, 183, 514

XML, converting to, 238–239

taglib-uri web.xml **file element, 514**

taglibuser.tag **file, 337**

Taiwan, localizing for, 400

Tapestry framework, 553

target set **JSTL tag attribute, 1097**

TDD (test-driven development), 889

Team **class, 804–805**

Team Fixture Management window (football roster management application), 821

Team.hbm.xml **file, 805**

tearDown **method, 908, 911, 916**

TeaServlet framework, 553

template. See also Tiles framework, layout

definition Tiles tag template attribute, 654

EL, inline, 148, 1077

error handling, 327

log message template, 456

static nature of, 33–34

tag placement within, 22

Velocity templating engine, 557

Web framework, using in templating, 552

test

if JSTL tag attribute, 1091

method, 375

when JSTL tag attribute, 1098

TestAction **class, 625, 629–630**

TestCase **class, 908, 917**

testCorrectAge **method, 918**

testCredit **method, 911**

testDebit **method, 911**

test-driven development (TDD), 889

TestForm

class, 574–575, 578–579, 581–582, 586–587, 590

JavaBean, 580, 632–633

method, 917

TestFormController **object, 572–574, 580, 583**

TestFormValidator **class, 572, 575–576, 585–586, 587**

testIncorrectAge **method, 918**

testing. See also specific testing framework

acceptance testing, 888, 891, 930

authentication application, 922

CHO, 864

debugging solution, 436

functional testing, 889, 891

load testing, 863, 868

Model 1 architecture application, 536

production environment, testing performance in, 880

regression testing, 889, 891

request handling when testing performance, 867–868, 869–870, 871–872

stress testing, 863

system testing, 891

threading, 868–869, 871

unit testing, 891

user

acceptance testing, 888, 891, 930

simulating concurrent users when testing performance, 867, 868–869, 871

utility overview, 891

white box testing, 891

TestRunner **class, 908, 916**

text. See also language

case, converting, 719, 1119, 1122

concatenating, 1118, 1120

data type, converting to string, 157–158, 1083

EL expression, rendering as, 219

encoding

ASCII, 418

Unicode, 412

UTF-8, 412, 425

web.xml file, declaring in, 516

escaping

ASCII, 418

Spring htmlEscape tag, 569

XML character, reserved, 342, 344, 390–391, 393, 1094

expression scripting element conversion to string, 77

index position of string, retrieving, 1118, 1120

JSF

case conversion, 719

outputting text from, 684

string conversion to/from JSF object, 710–715

validating text in, 693, 697

length of string, returning, 1118, 1120

request parameter encoding, 425–426

resource bundle, retrieving from, 414–417, 420, 434, 1106, 1111

searching and replacing tag text, 342–344

searching substring, 1118–1119, 1121–1122

splitting string, 1118, 1121

Struts text tag, 608

Tiles framework value, retrieving as string, 656–657, 666

translation, working with, 396, 407–408

validating text data, 375–376, 632, 693, 697

WebWork text tag, 557

white space, trimming, 1119, 1122

text **action, 273**

textarea **Struts tag, 609**

textarea **WebWork tag, 557**

Thawte CA, 831

theme **Spring tag, 569**

thin client application, 727

this **keyword**, 743

thread

- EJB thread management, 742
- log event, retrieving generating thread, 457
- page directive `isThreadSafe` attribute, 1066
- performance, testing, 868–869, 871
- ramp-up period, 871
- servlet threading, 494
- tag library, `thread-safe`, 494

throughput, 862, 871

Throwable **object**, 314

Tiles framework

- add tag, 656
- body tile, 645
- configuration file, validating, 647
- creating tile, 649
- debugging output, 647
- definition
 - action forward, configuring as, 671–673
 - configuration file, 647, 652, 653, 654
 - described, 646
 - inheritance, 659–665, 667–668, 679
 - initializing, 648
 - instance of usage, relation to, 645, 646
 - JSP file, storing in, 51
 - menu, 650–651, 664–668, 669–670
- described, 644–645, 646
- downloading, 646
- duplication, 650
- factory class, 647, 658
- footer tile, 644–645, 662
- get tag, 656
- getAsString tag, 656–657, 666
- header tile, 644–645, 659, 662
- importAttribute tag, 657–658, 666
- initComponentDefinitions tag, 658
- insert tag, 649–650, 653, 670
- installing, 646–648
- instance of usage, 645, 646
- JavaBean, using, 653, 654
- layout
 - animation, adding to, 660, 670, 674, 676–678
 - described, 645
 - `index.jsp` file configuration, 645
 - passing tile to, 645
 - path, 661
- menu tile
 - definition, 650–651, 664–668, 669–670
 - inheritance, 660–663, 667–668
 - item list, 664–665, 666, 676

- Struts, passing value from, 673–678

- `tiles-defs.xml` file configuration, 665, 669, 674, 1025

- title, 666, 675

- nesting tile, 664

- parameter, passing to tile, 654–656, 658–659, 669–670

- put tag, 650, 652, 654–655

- putList tag, 655–656, 665

- scope, 650, 654, 657–658

- shopping cart application layout using, 1022–1023, 1024–1026, 1029, 1040, 1054

- string, retrieving value as, 656–657, 666

- Struts, using with

- configuring tile using Struts, 671

- definition, configuring as action forward, 671–673

- localization, 679

- passing value from Struts to Tiles, 673

- `struts-config.xml` file configuration, 671, 676

- `tiles-defs.xml` file configuration, 671, 674

- useAttribute tag, 657

- Web portal configuration, 950–951

- Web site, 646

- `web.xml` file configuration, 646–647, 950–951

`tiles-config.dtd` **file**, 646

`tiles-defs.xml` **file**

- definitions-config `tiles-defs.xml` attribute, 647

- definitions-debug `tiles-defs.xml` attribute, 647

- definitions-factory-class `tiles-defs.xml` attribute, 647

- definitions-parser-details `tiles-defs.xml` attribute, 647

- definitions-parser-validate `tiles-defs.xml` attribute, 647

- directory, 648

- inheritance configuration, 660–661, 667–668

- menu configuration, 665, 669, 674, 1025

- shopping cart application configuration, 1025, 1029, 1040

- Struts configuration, 671, 674

- syntax, 652

`tiles.defs.xml` **file**, 647

`tiles.jar` **file**, 646

time

- authorization, limiting by, 860

- displaying current, 527

- form submission, timestamping, 734

- formatting using `formatDate` JSTL tag, 1107

time (continued)

time (continued)

JSF `DateTimeConverter` converter, 711–712
modification-time check, optimizing performance via
 disabling, 879–880
 zone, 432–433, 712, 1107, 1110, 1112–1113

`Time` **class**, 755

`TimedObject` **interface**, 745

`Timer` **interface**, 745

Timer Service feature (EJB), 745–746

`Timestamp` **class**, 755

`timeStyle` **attribute**

`convertDateTime` JSF tag, 712
 `formatDate` JSTL tag, 432
 `parseDate` JSTL tag, 1110

TLD (Tag Library Descriptors), 173–174, 182–183,
 355–356

`todaydate.tag` **file**, 330, 336

token, `PatternLayout` **object**, 456–458

`toLowerCase` **JSTL function**, 1119, 1122

Tomcat server

 access control list, 15
 administrative user, 15
 authentication, 24–26, 528–529
 authorization, 15, 828
 console, 442
 debugger, configuring to listen for, 469
 directory, default, 468
 disabling, 468
 downloading, 13–14
 error-reporting screen, 306
 HTTPS, activating, 837, 852–853
 installing, 14–15
 Jasper compiler, 484
 Manager utility, 24–26, 497
 password, 15
 reference implementation, as, 17
 shopping cart application configuration, 1010
 shutting down, 16
 snoop application, 475
 SSL configuration, 833–837, 852–853
 standalone mode, 18
 starting, 16, 468–469
 WAR file deployment, 25–26
 Web application, deploying for, 524–527
 Web browser, accessing in, 16
 welcome page, 16

`tomcat-users.xml` **file**, 528, 838, 853–854, 856–858

`tools.jar` **file**, 20

Top Nav Bar script, 133

TopLink framework, 552, 553

`toString` **method**, 656

`toUpperCase` **JSTL function**, 1119, 1122

tps (transactions per second), 862

traffic, bursty, 862

transaction

 atomicity, 775
 consistency, 775
 data source, 754, 1117
 durability, 775
 isolation, 775, 776, 1117
 JSTL transaction tag, 1116–1117
 J2EE container transaction management role, 724
 response time, 862

transactions per second (tps), 862

transfer object, 276, 874–875

`transferFrom` **method**, 910

`transform` **tag**

 JSTL, 1104
 Spring, 569

translation (data)

 class, page translation to, 217–218
 container role, 216, 217, 247–249
 error handling, translation-time, 236, 312–313
 include operation, carrying out during, 231–233, 235,
 262, 263
 page processing translation phase, 215–216, 217
 unit, 217
 useBean action role, 247–248
 variable, dependence on generated, 258

translation (text), 396, 407–408

`trim` **JSTL function**, 1119, 1122

Turbine framework, 554

`type` **attribute**

 attribute directive, 338, 1069
 `convertDateTime` JSF tag, 712
 `convertNumber` JSF tag, 713
 `dateParam` JSTL tag, 1114
 `formatDate` JSTL tag, 432, 1107
 `formatNumber` JSTL tag, 1107
 `inputText` JSF tag, 717
 `parseDate` JSTL tag, 1110
 `parseNumber` JSTL tag, 1110
 plugin action, 267, 1074
 `put Tiles` tag, 655
 useBean action, 244, 246, 250–251, 1071

U

`UIComponent` **object**, 698

`UIViewRoot` **class**, 690, 692

underscore (_) country code separator, 400

Unicode character format, 412, 418. See also UTF-8 character format

Uniform Resource Locator. See URL

unit testing, 891

United Kingdom, localizing for, 399–400, 428, 429, 431, 433

United States, localizing for, 399–400, 428, 431

update **JSTL tag, 1117–1118**

updateCart **method, 1042**

uri taglib **directive attribute, 43, 176, 183, 191, 224–225**

URL (Uniform Resource Locator)

hiding, 285

HTTP GET method encoding, 64–65

import JSTL tag url attribute, 1092

JSTL url tag, 185, 194–195, 407, 1097

language selector form URL generation, 407, 410

pattern, matching, 515

redirect JSTL tag url attribute, 1096

servlet mapping, 494, 498–500

setDataSource JSTL tag url attribute, 1116

Web browser access process, 4–5

web.xml file security-constraint element mapping, 828

url-pattern web.xml **file element, 230, 473, 515**

use case analysis, 931–932, 984–985

useAttribute **Tiles tag, 657**

useBean **action**

body, 246

class attribute, 244, 1071

compilation role, 248

described, 243

id attribute, 243, 244, 1070

index.jsp file, 245–246

news.jsp file, 55, 57

request handling role, 248

scope attribute, 244, 246, 247, 1071

set JSTL tag compared, 258–259

syntax, 243, 244, 1070

translation role, 247–248

type attribute, 244, 246, 250–251, 1071

user

acceptance testing, 888, 891, 930

application design, involving in, 888–889

debugging, simulating concurrent users when, 470–471

end user, 441

logging activity of specific, 471

name

encoding, 827

greeting, using in personalized, 60–64

returning, 830

tomcat-users.xml file username attribute, 854

performance

perspective of user, 863

simulating concurrent users when testing, 867, 868–869, 871

preference selector application

boxTitle class, 120, 129

color theme, 123–125, 129, 131–132

CSS content, generating, 127–129

font, 123–125, 129, 131–132

form, 61–64, 126–127, 959–962

index.jsp file, 126–127

showportal.jsp file, 129–131

preference, storing in database, 748

Principal object for, returning, 830

profile

transfer object, retrieving in, 874

Web portal personalization, using in, 931, 933–934, 935–937, 972–975

registering in Web portal application, 959, 961–962, 967, 970–974, 977

role, verifying, 830

XP user story technique, 888

UserProfile **class, 935–937**

UserProfileDB **object, 934**

UserProfileDBMemoryImpl **object, 934**

UserTransaction **object, 735**

UTF-8 **character format, 412, 425. See also Unicode character format**

utility framework, 553–554

V

validate **method, 575, 617–618**

validateErrMsg **tag, 382, 383, 386**

validateError **CSS class, 376–377**

validateForm **function, 376, 378**

validateFunctions **tag, 382, 383–384**

validation

action, invoking with, 595, 596

auction Web site application, 282–283, 393

authentication information, 617–619, 641

bandwidth considerations, 363, 364

client-side, 364–366, 620

Commons Validator library, 627, 1012

validation (continued)

validation (continued)

- credit card data, 623, 1050
- date, 622–623
- described, 327
- drop-down list field, 634–639
- e-mail address, 623, 632–634
- empty field, disallowing, 587, 620–621, 629, 631
- error message, 382, 383, 386
- front controller, carried out by, 275
- index.jsp file validation coding, 362
- internationalizing validation message, 588–589
- JavaScript, using, 366, 372–379, 382–383
- JSF
 - backing bean, using, 693–694, 704–705
 - creating custom validator, 698–703
 - number data, 697, 698–703
 - process validation, 691, 692
 - standard validator, 697
 - text data, 693, 697
- need for, 364–365
- number data
 - form number field, 374–375, 382, 587, 641, 918
 - JavaScript, 374–375, 382
 - JSF, 697, 698–703
 - Spring, 587
 - Struts, 641
- password, 609, 620–622
- remembering detected error, 376–377, 579
- server-side, 363, 364–365, 620
- shopping cart application, 1022–1023, 1048–1050
- span tag, using, 376–377
- Spring, using, 572, 575–576, 578–579, 584–587
- Struts, using, 611, 617–623, 628–629, 1022–1023, 1048–1050
- text data, 375–376, 632, 693, 697
- Tiles configuration file, 647
- VBScript, using, 366
- Web browser role, 363
- Webwork, using, 554, 560, 561, 562, 565
- Zip code, 1048, 1049
- validation.xml **file**, **619–621, 629, 633, 637, 1048**
- Validator **interface**, **698**
- validator-rules.xml **file**, **621, 622**
- ValidatorTag **class**, **701**
- value **attribute**
 - dateParam JSTL tag, 1114
 - formatDate JSTL tag, 432, 1107
 - formatNumber JSTL tag, 1107
 - out JSTL tag, 1094
 - param JSTL tag, 1095, 1102, 1109, 1114
 - parseDate JSTL tag, 1110
 - parseNumber JSTL tag, 1110
 - put Tiles tag, 655
 - requestEncoding JSTL tag, 1111
 - set JSTL tag, 1097
 - setLocale JSTL tag, 421, 1112
 - setProperty action, 252, 1072
 - setTimeZone JSTL tag, 1112
 - TimeZone JSTL tag, 1113
 - url JSTL tag, 1097
- value binding expression**, **685**
- value-change **JSF event**, **716**
- ValueChangeListener **interface**, **716, 717**
- valueOf **method**, **158, 161**
- var
 - attribute
 - doBody action, 342
 - forEach JSTL tag, 59, 1093, 1100
 - formatNumber JSTL tag, 1108
 - forTokens JSTL tag, 1094
 - if JSTL tag, 1101
 - import JSTL tag, 1092
 - invoke action, 348
 - message JSTL tag, 422, 1109
 - parse JSTL tag, 1103
 - parseDate JSTL tag, 1110
 - parseNumber JSTL tag, 1111
 - query JSTL tag, 1115
 - remove JSTL tag, 1096
 - set JSTL tag, 1097, 1103
 - setBundle JSTL tag, 1111
 - setDataSource JSTL tag, 1116
 - setTimeZone JSTL tag, 1112
 - transform JSTL tag, 1104
 - update JSTL tag, 1117
 - url JSTL tag, 1097
 - catch action attribute, 314, 317
- varDom parse **JSTL tag attribute**, **1103**
- variable**
 - counter, 352, 437, 443–444
 - debugging, watching value during, 443–444, 467–468
 - declaring using declaration scripting element, 75
 - directive, 339–341, 352, 354, 1069–1070
 - EL
 - dependence on generated, 258
 - named variable, 146–147, 162, 1079
 - exception, expressing as, 219
 - getProperty action dependence on generated variable, 258
 - JavaBean, 162, 247

scope, 191, 204, 206, 209, 339–341
 scripting variable, 75, 191
 setProperty action dependence on generated variable, 258
 variant setLocale **JSTL tag attribute, 421, 1112**
 varReader **attribute**
 doBody action, 342
 import JSTL tag, 1092
 invoke action, 348
 varStatus **attribute**
 forEach JSTL tag, 1093, 1100
 forTokens JSTL tag, 1094
VBScript
 described, 121
 execution, client-side, 118–119
 generating dynamically, 119
 validation using, 366
 Web browser support, 121
Velocity templating engine, 557
 Venue **class, 784–786**
 Venue.hbm.xml **file, 786**
 venue.jsp **file, 792–793, 800**
 VenueProcessingCommand **class, 796–799, 800**
VeriSign CA, 831, 850
version control, 890
video applet, 273
 view **JSF tag, 685, 690**
view technology, 556
 viewResolver **JavaBean, 577**
 views.properties **file, 561, 562, 577**
Visual SourceSafe software, 890

W

WAR (Web archive) files, 23, 25–26, 523
 warm.do **file, 510**
 warn **tag, 461**
 warning **function, 449**
watchpoint, 467–468
waterfall development methodology, 886–887
 weather.jsp **file**
 DHTML menu system, 144
 JavaBean usage, 58–59
 personalization data, 69–70
 reusing code, 72
Web application. See also specific component and functionality
 deploying, 523–527
 described, 512
 directory structure, 512–513, 898

e-mail, sending using, 746
 footer element, adding, 530
 header element, adding, 530
 Hibernate, converting to, 792, 800
 integration provided by Web service, 930
 JSP page, adding, 526–527
 MVC implementation, 534–537
 Web site as, 930

Web archive (WAR) files, 23, 25–26, 523

Web browser

applet alternative, providing for non-supporting browser, 272
 form processing, Web browser role, 37
 SSL certificate
 displaying, 736, 851, 852
 installing, 850–851
 Tomcat server, accessing, 16
 Unicode support, 412
 URL access process, 4–5
 validation role, 363, 364
 VBScript support, 121

Web Component container, 722, 723, 727, 728–729

Web framework. See also specific framework

application, 551–552
 described, 549–550
 MVC compared, 551
 pattern, 550
 persistence framework, 552
 templating, using in, 552
 utility framework, 553–554
 validation mechanism, 552–553, 554, 562

Web portal application

AmazonStore class, 956–958
 Ant build script, 947–949
 ApplicationResources.properties file, 959
 authentication, 944, 952, 959–960, 968–972
 Axis configuration, 956–958
 CSS stylesheet, 51–52
 DHTML menu system
 color customization, 134–137, 139–141
 entertain.jsp file, 144
 font customization, 134–137, 139–141
 HTML menu compared, 132
 index.jsp file, 137–139
 JavaScript generation, 141–143
 menu.js file, 133
 news.jsp file, 141–143
 showportal.jsp file, 139
 Top Nav Bar script, 133
 weather.jsp file, 144

Web portal application (continued)

- directory structure, 946–947
 - domain model, 931–932
 - EditProfileAction class, 972–974
 - EditRegistrationAction class, 970
 - entertain.jsp file, 58, 69, 72, 144
 - error handling, 964, 965
 - flow control, 944–945, 950
 - form submission, 36–37, 38–43, 65–66
 - home page, 46–47
 - index.jsp file, 51–52, 66, 67, 126–127, 137–139
 - InterestItem class, 935, 942–943
 - ItemFeed class, 935, 941–942
 - logging, 951–953, 968
 - LogonAction class, 952
 - MVC implementation
 - Controller, 966–975
 - View, 959–966
 - NewsFeed class, 56–58, 162–166, 935, 938–939
 - NewsItem class, 935, 939–940
 - news.jsp file
 - DHTML menu coding, 141–143
 - getProperty action, 57–58
 - include action, 261–262
 - include directive, 55, 233–234, 235–236
 - JavaBean usage, 57
 - reusing code, 72
 - setProperty action, 57
 - useBean action, 55, 57
 - news1.jsp file, 260–261, 262, 263
 - NewsServiceImpl class, 953–955
 - news3.jsp file, 264
 - news2.jsp file, 260–261, 262
 - personalizing
 - domain model, 931–932
 - factory design pattern, using in, 932, 933
 - persistence, 932–935
 - requirement analysis, 930–931
 - RSS, using, 926–929, 953
 - use case analysis, 931–932
 - user profile, using in, 931, 933–934, 935–937, 972–975
 - portal-advt.jsp file, 963, 965
 - portal-body.jsp file, 963, 964
 - portal.css file, 52–53, 127–128, 132
 - portal-header.jsp file, 963, 964
 - portal-layout.jsp file, 963–964
 - portalpage.jsp file, 963
 - Publisher class, 935, 940–941
 - registration.jsp file, 959, 961–962, 970
 - rendering, 54–55
 - Rome configuration, 953–955
 - SaveProfileAction class, 974–975
 - SaveRegistrationAction action, 970
 - service locator, 955
 - showportal.jsp file
 - address, 37
 - content, independence from, 46–47, 50–51
 - DHTML menu coding, 139
 - form submission role, 42
 - include directive, 54–55
 - portal.css embedding in, 132
 - username parameter, 67–68
 - Struts configuration, 949–950, 959, 966–967
 - Tiles configuration, 950–951
 - user preference selector
 - boxTitle class, 120, 129
 - color theme, 123–125, 129, 131–132
 - CSS content, generating, 127–129
 - font, 123–125, 129, 131–132
 - form, 61–64, 126–127, 959–962
 - index.jsp file, 126–127
 - showportal.jsp file, 129–131
 - user profile, using in personalizing, 931, 933–934, 935–937, 972–975
 - user registration, 959, 961–962, 967, 970–974, 977
 - UserProfile class, 935–937
 - UserProfileDB object, 934
 - UserProfileDBMemoryImpl object, 934
 - weather.jsp file
 - DHTML menu system, 144
 - JavaBean usage, 58–59
 - personalization data, 69–70
 - reusing code, 72
 - Web service call, 956
 - WroxServiceLocator class, 955
- Web server. See also specific Web server**
- in-process configuration, 8–9
 - JVM, relation to, 8
 - legacy support, 882
 - limitation inherent to, 5
 - networked configuration, 8
 - performance, optimizing via deploying static content
 - from, 881–882
 - request handling, 4
 - stability, 882
 - standalone configuration, 8–9
 - Web browser URL access role, 4
- Web service, 929–930, 956**
- Web Service Definition Language (WSDL), 929**

Web storefront application. See also shopping cart application

addList function, 205
 Category class, 82, 83
 clearList function, 205
 dispPrice method
 currency formatting by, 85, 90
 declaring, 75, 85
 JSTL, replacing with, 190, 195, 202
 EShop class, 82, 83, 90, 205, 274
 eshop-taglib.tld file, 191–193, 195, 206
 estore.jsp file, 83–85, 188–190, 194–195, 211
 getCats method, 86, 190, 191–192, 274
 getItem method, 204
 getItems method, 90, 97, 195
 isDigitsOnly function, 374–375, 376
 isTextOnly function, 375–376
 JSTL, converting to, 186–195
 LineItem class, 103, 110
 price display
 catalog, 81, 83, 85, 88, 190
 currency formatting, 85, 90, 195, 202
 product.jsp file, 211
 WebConversation **class**, 916
 web-facesconfig_1_1.dtd **file**, 682
WebLOAD software, 864
Weblogic server, 552
 WebResponse **class**, 916
Websphere server, 552
Webwork framework
 append tag, 557
 bean tag, 557
 build.xml file, 559
 checkbox tag, 556
 combobox tag, 556
 compiling Webwork application, 559
 Custom Tag Library, 556–557
 directory structure, 558
 Dispatcher, 554–556, 561
 downloading, 558
 else tag, 557
 elseif tag, 557
 form, working with in, 554, 560–565
 HMVC architecture, 554
 include tag, 557
 installing, 558
 Jasper Reports feature, 557–558
 label tag, 556
 logging, 554
 property tag, 562, 564

radio tag, 556
 select tag, 556
 sort tag, 557
 tabbedPane tag, 556
 table tag, 557
 textarea tag, 557
 validation, 554, 560, 561, 562, 565
 Velocity templating engine, 557
 view, 556
 Web site, 554
 XSLT support, 557
 webwork-examples.war **file**, 558
 webwork.properties **file**, 561
 webwork-skeleton.zip **file**, 559
 webwork.war **file**, 558
 web.xml **file**
 authentication configuration, 528, 529, 843
 BasicServlet class, 495–496
 character encoding, declaring in, 516
 container independence, 495
 context-param element, 517–518
 Controller servlet, 504–505
 description element, 496
 development attribute, 880
 display-name element, 496–497
 el-ignored element, 515–516
 env-entry element, 521–522, 735–738
 error-page element, 518–519
 extension, server-specific, 495
 football roster management application, 758–759
 form-processing servlet, 733, 735–736
 include-coda element, 229–230, 517
 include-prelude element, 229–230, 239, 516–517
 init-param element, 505
 is-xml element, 516
 JDBC configuration, 740
 JSF configuration, 683, 690
 jsp-config element, 514
 jsp-property-group element, 514–517
 logging setup, 461, 473
 login-config element, 519–520, 528–529
 NDC filter setup, 473
 page-encoding element, 516
 param-name element, 505
 param-value element, 505
 reloading attribute, 880
 resource-ref element, 522, 740, 741
 res-ref-name element, 740
 scripting-invalid element, 516

web.xml file (continued)

web.xml file (continued)

- security-constraint element
 - authorization configuration, 520, 828–829, 838–839
 - described, 519
 - file access, restricting using, 690
 - URL mapping, 828
 - user-data-constraint subelement, 520
 - web-resource-collection subelement, 520, 838, 840
- security-role element, 521, 528
- servlet element, 496, 505, 522
- servlet-mapping element, 498–500, 502, 505, 522, 572
- shopping cart application, 1023
- specification, 495
- taglib element, 176, 183, 514
- taglib-uri element, 514
- text encoding, declaring in, 516
- Tiles configuration, 646–647, 950–951
- url-pattern element, 230, 473, 515
- Web application deployment, creating skeleton
 - web.xml file for, 524
- Webwork Dispatcher, 561
- welcome-file-list element, 518
- XML, declaring in, 516

when **JSTL tag**, **44, 45, 287–289, 1098, 1105**

white box testing, **891**

white space, trimming, **1119, 1122**

winner.jsp file, **302**

write **Struts tag**, **615**

Wrox Web site, **23**

WroxServiceLocator class, **955**

WSDL (Web Service Definition Language), **929**

WSDL2Java class, **956, 958**

X

xindex.jsp file, **232, 233**

xindex.xml file, **236–238**

XML (eXtensible Markup Language)

- action use of, 34–35
- directive
 - compatibility, 214–215
 - converting directive to, 231–233, 237–239
- drop-down list HTML/XML selector, 274
- DTD, servlet support, 496
- escaping reserved character
 - EL function, using, 391, 393
 - JSTL function, using, 342, 344, 1118, 1120
 - out JSTL tag escapeXML attribute, 1094, 1102
- generating dynamically, 386–392
- getInfo tag, 389, 391–392
- include directive, converting to, 231–233, 237, 238–239
- index.jsp file, converting to, 236–238, 239
- JSTL XML tags, 185–186, 1098–1105
- syntax compatibility with JSP 33, 34–35, 214
- tag, 34
- taglib directive, converting to, 238–239
- validity, 155
- web.xml file, declaring in, 516

XMLFormater class, **452**

XP (Extreme Programming), **887, 888–889, 903**

XPath expression

- conditional processing using choose JSTL tag, 1099
- iterating through using forEach JSTL tag, 1100

XProgramming.com Web site, **887**

XSLT (Extensible Stylesheet Language Transformation), **557, 1104**

xUnit framework, **889**

Y

YouWin.jsp file, **695–696**

Z

Zip code, validating, **1048, 1049**