Index

A
AbstractFactory pattern, 274–275
Action pane, Web Services Explorer, 452
action property, DocBook validator, 590
Actions
adding to WSDL editor design view, 627–635
defined, 124–125
Add and Remove Projects. See Run On Server wizard
addTestSuite method, 519–520
adminas tool, 561, 569
Adobe Flash, 116
Agents, in REST architectural style, 424
“Ajax: A New Approach to Web Applications” (Garrett), 206
AJAX. See Asynchronous JavaScript and XML (AJAX)
AJAX Toolkit Framework (ATF), 92, 206, 679
All-in-one zips, WTP installation, 98–100
AllTests.java listing, 519
Annotations
adding new content to XSD using, 607
developing JPA with WTP using, 415–418
in EJB 3.0, 326–327
in J2EE development, 35
Ant tasks, Web service, 444
antlr.jar, 166
AP (Attachments Profile), 471
Apache
Axis2, 680
Beehive project, 129
Cactus. See Cactus
Derby. See Derby
Jakarta project, 262
Struts. See Struts
W3C WSDL 2.0, 680
“Apache Derby Fortune Server Tutorial” (Anderson), 78
API. See Application Programming Interfaces (APIs)
Applets, Java, 44
Application controller, MVC, 123–127
Application infrastructures, 113
Application logic
designing Java Web applications, 119
domain model vs., 298–299
handling in Model View Controller, 123
layered Web application design, 121
services as mix of business and, 132
Application Programming Interfaces (APIs)
creating transparency for persistence layer, 370
defined, 683
in future versions of WTP, 584
JDBC, mapping objects to database using, 371–372
JST support for J2EE, 35
server, 553
Web Tools Platform, 3
in WTP architecture, 28
WTP goal of providing platform, 24
Application-scoped objects, 279
Application servers, deploying application to, 352–355
application.xml. See Deployment descriptors
Architectural Styles and the Design of Network-based Software Architectures (Fielding), 425
Architectures
building business tier with component, 297
component, 297
WTP, 27–28
article.dockbook listing, 583–584
Articles, writing WTP, 39
Artifacts, J2EE development, 44–45
“Asynchronous Java Script Technology and XML (AJAX) With Java 2 Platform, Enterprise Edition” (Murray), 206
Asynchronous JavaScript and XML (AJAX), 205–206
AsyncLeagueFacadeBean.java listing, 362–363
ATF (AJAX Toolkit Framework), 92, 206, 679
Attachments Profile (AP), 471
Audio, server preference, 107, 264
Autobuilds, disabling for validation, 250–251
Automated testing, 511–512
Axis
Axis2, 680
deploying Top-Down Web services, 444–445
WTP including, 100
Axis Emitter Web services preference, 108
AxisServlet, 445–446, 463
Bean-managed persistence (BMP), 372, 392
Bean-managed transaction demarcation, 343–344
Beehive project, Apache, 129
BindingGenerationAction, 630
Birds-of-a-Feather (BOF), WTP, 15
Blackbox testing, 510, 683
BMP (bean-managed persistence), 372, 392
Body, SOAP, 423
Bottom up Java Bean Web service, 84–85, 460
Bottom-Up Web services. See Web services, Bottom-Up development
BP (Basic Profile), 471
Breakpoints
debugging in JSP with, 61–63
debugging servlets, 69–70
setting in JSP source files, 280
Bugs. See also Debugging
fixing unassigned WTP, 39
reporting to Bugzilla, 38
Bugzilla, 38
Build section, Maven, 186
Build types, WTP, 92–95, 98–100
Builders, 51, 140
“Building Web Services the REST Way” (Costello), 426
Business logic tier, 297–367
common design for, 300–301
as core of system, 199
defined, 297
domain model and. See Domain models
implementing business logic, 121–122
Java Web applications, 120, 128
Message-Driven Beans and. See Message-Driven Beans (MDBs)
overview of, 115–116, 297–300
presentation logic vs., 199–200
session EJBs and. See Enterprise JavaBeans (EJBs), session
Business objects
as business logic code, 121–122
defined, 127
providing services. See Service-Oriented Architecture (SOA)
C

Cache preference, Internet, 107
Cactus, 520–528
  creating integration test, 523–527
  instance variables accessed by, 521–522
  overview of, 520–521
Callisto Discovery Site, 43
Cascading Style Sheets (CSS)
  features of, 203–204
  J2EE Web pages containing, 45
  specifying styles with, 230–234
Cascading Style Sheets, level 2, CSS2
  Specification [CSS2], 230
Catalog extension listing, 652
Change control, 161
Chemical Markup Language (CML), 421
Class structure page, New Servlet wizard, 479
Classpath management
  with Maven and WTP, 184
  Web applications, 175–176
cleanup method, DocBook validator, 595
Client-side cookies, 289
Client-side processing, 204–205
Client tier, 205
Closed content model, XML, 607
CML (Chemical Markup Language), 421
CMP. See Container-managed persistence (CMP) entity beans
Code generators, 140
CodeGear JBuilder, 670
Commands
  Maven, 188
  WST tools for, 34
Committer, to WTP, 39
commons*.jar libraries, 166, 186
Compilation, JSP, 279
Components
  building business tier with, 297
  vendor cooperation on common, 16
config instance variable, 522
Configuration, 276
Configuration and release management, 161
confirmation.html listing, 243
Connections, database, 72–75
Consuming services, 132
Container-managed persistence (CMP) entity beans
  adding ejbCreate and finder methods, 401–408
  adding Ice Hockey CMP data access object, 408–410
  adding to project, 396–400
  defined, 372, 392
  preparing Derby for, 393–394
  preparing JBoss for, 394–395, 397
  preparing XDoclet for, 394–396
  testing, 410–414
Container-managed transaction demarcation, 343–344
Containers
  EJB, 148, 326
  J2EE, 117
Content assist
  CSS, 232–233
  HTML, 214–215
  JSP, 284–286
  source editors, 219
  templates, 223–225
Content negotiation, 425, 426
Content types
  declaring DocBook, 601–604
  using SSE for mixed, 604
Context URLs, Cactus tests, 527
Cookies, 289
Cookies (Laurent), 289
Core J2EE Patterns (Alur et al.), 326
Create Enterprise JavaBean wizard, 359–363
create method, entity beans, 392
Create Servlet wizard, 270–273
Create Web service command, 83–86, 460
Create XML File wizard, 248–250
CreateLeagueAction.java listing, 364–365
creatertables.sqlpage listing, 382
CSS. See Cascading Style Sheets (CSS)
Customer support, 20–21
Dai, Naci, xxv
Dali incubator project
  defined, 327
  developing EJB 3.0 and JPA support in, 414
  overview of, 679
Data access layer, domain models, 315–320
Data access tools, WST, 33
Data entry
  JavaScript form validation, 236–247
  presentation tier, 204–205
Data layer
  implementing, 386–391
  Java application frameworks and, 128
  overview of, 115–116
Data Output view, 73, 77
Data tools
  disconnecting Derby when finished using, 78
  JDBC used by, 71
  setting Data preferences for, 106–107
  WST, 33, 374
Data Tools Platform (DTP), 33, 678
Database access, 71–82
  adding to Web application, 78–82
  connecting to database, 72–75
  with Derby, 376–378
  executing SQL statements, 75–78
  overview of, 71–72
  when not connected, 378–379
Database, creating, 375–385
  adding sample data to tables, 382–385
  adding tables, 379–381
  creating connection to Derby, 375–378
Database Explorer
  accessing database when not connected, 378–379
  adding data to tables, 384–385
  connecting to database, 73–75
  connecting to database with Derby, 376–378
  defined, 33
  filtering items shown by, 378
  opening SQL Scrapbook Editor in, 76
  Database.java listing, 78–79
  .dbk files, 602–604
  De jure standards, 26
  Debugging
    JavaScript, 245–247
    JSP, 61–64, 280, 287–288
    plug-ins, 573–580
    servlets, 69–70
    unassigned WTP bugs, 39
    WTP supporting JSP, 28
  Default character set, 602
  Define a New Server page. See Run On Server wizard
  Definition files, generic server, 566–570
  Dependencies
    building Web client, 349–350
    creating stateless session bean, 344–349
    implementing DocBook validator, 587
    implementing Maven, 186–187
  Dependent modules, 165
  Deployment descriptors
    in Cactus tests, 526
    creating EAR project, 157, 159
    creating EAR project with multiple modules, 170
    creating servlets, 67, 478–479
    as J2EE development artifact, 44–45
    overview of, 649
    specifying runtime policies in, 326
  Derby
    creating database connection to, 78–82, 376–378
    developing CMPs with, 393–394
    disconnecting from, 77–78
    downloading and installing, 71–72
    in multiple Web applications, 78
    overview of, 375
    single-user embedded vs. shared mode, 390
  Derby Database configuration listing, 394
  Design Patterns (Gamma et al.), 274
  Design tab, XML editor, 250, 252
  Design view, WSDL editor
    adding custom actions to, 627–635
    customizing extensibility elements in, 614–617
    overview of, 613
Index

Designing Interfaces (Tidwell), 203
“Develop HTML widgets with Dojo” (Kusakov), 206
Developer view, 161
“Developing the WTP with Eclipse” (Hutchinson), 39
Development artifacts, J2EE, 44–45
Development expenses, reducing, 16–18
Development project organization, 137–197
advanced Web projects, 160–165
dividing Web module into multiple projects, 171–180
enterprise application example, 165–171
Maven for Web applications. See Maven
Web projects and J2EE applications. See Web projects
Directives, JSP markup, 279
Disconnect command, 77–78
Discovery, 32, 495
dispose method, LabelProvider, 616
Distributed applications, 325
Distributions, for revenue, 19
DocBook, 583–604
creating custom marker type, 598–600
creating extension plug-in, 585
declaring content type, 600–604
overview of, 583–584
SSE framework and, 604
DocBook validator, 585–598
best practices, 598
implementing, 587–598
overview of, 585–586
WTP validation framework and, 586–587
DocBook validator contribution to plugin.xml listing, 591–592
DocbookValidator class, 589
DockBookValidator.java listing, 592–594
Document/literal wrapped, 462
Document Object Model (DOM), 31, 613–614
Document style, SOAP binding, 461
Document Type Definitions (DTDs), 257–261
adding catalog of resources to XML catalog, 654–657
adding single resource to XML catalog, 653–654
contributing resources to XML catalog, 648–650
registering for resource resolution in XML catalog, 650–651
WST tools for, 30–32
doGet method, HelloServlet.java, 68–69
Dojo, 206
DOM (Document Object Model), 31, 613–614
Domain, GlassFish, 554
Domain models
application logic vs., 298–299
building with POJO, 298
object models as, 298
Domain models, building, 301–324
data access layer, 315–320
J2EE Utility Projects, 301–304
object model, 304–310
service layer, 310–314
testing, 320–324
Drag effect, 20
DTDs. See Document Type Definitions (DTDs)
DTP (Data Tools Platform), 33, 678
Dynamic invocation, of Web services, 464
Dynamic Web project wizard, 142–148, 268
Dynamic Web projects
creating, 52–56, 142–148
default layout for, 141–142
defined, 141
Maven, 183–185
overview of, 51, 267–269
servers, 261–267
spectlets, 270–279

E
E-mail address obfuscation, 234–239
Echo.wsdl listing, 610–611
Eclipse
Bugzilla system, xxi
installing for WTP, 92
PHP Development Tools project, 674, 680–681
Pollinate project, 126
simple projects, 139
SOA Tools platform project, 681
Tools layer, 28
WTP architecture and, 28
Eclipse Foundation, 14
Eclipse Management Organization (EMO), 14–15, 22, 683

Eclipse Modeling Framework: A
Developer's Guide (Budinksy), 614

Eclipse Modeling Framework (EMF)
adding custom elements to, 614
installing for WTP, 92
JST support for J2EE and, 35
in WTP architecture, 28, 44

EclipseCon, 14–15

Economics, WTP, 15–22
generating revenue, 19–22
Open Source, 15–16
reducing development expenses, 16–18

Edge servers, 207

Edit Profiling Options wizard, 543–545

Editing
EARs, 159–160
HTML page with source editor, 218–230
JSPs, 56–57

EJB. See Enterprise JavaBean (EJB)

EJB Design Patterns (Marinescu), 326
ejbCreate method, GameBean, 401–408
ejbdoclet, 109, 334

EMF. See Eclipse Modeling Framework
(EMF)

EMO (Eclipse Management Organization), 14–15, 22, 683
employee.xsd, 658–659
enabled property, DocBook validator, 589

Encoding and Line Delimiter preferences, 108

Enterprise Application Client (JAR) module, 164, 176–177

Enterprise Application wizard, 155–159
Enterprise Applications (EARs), 154–160
adding existing Web and EJB modules to, 155–159
creating new Web or EJB module in, 154–155
creating project with multiple modules, 165–171
editing, 159–160
EJB project combined with other modules in, 148
overview of, 154
running session EJB application, 353
structural model for, 163–164

Enterprise Information System (EIS) tier, 205, 300

Enterprise JavaBean (EJB). See also Entity beans
3.0 specification, 326–327
adding project to EAR, 168–169
alternatives to, 326–327
Client Projects, 152
containers, 117–118, 148
creating applications, 148–154
JARs, 164
JST tools for, 36
projects, 335–339
Tools component of JST, 374

Enterprise JavaBean (EJB) client module
adding to J2EE dependencies in Web project, 170–171
creating, 168–169
creating EJB projects, 337

Enterprise JavaBeans (EJBs), session, 325–358
adding JBoss to workspace, 329–332
alternatives to EJBs, 326–327
building Web client, 349–352
creating EJB projects, 335–339
creating session beans, 339–349
defined, 36
developing 3.0 with WTP, 356–358
entity beans vs., 392
generating code with XDoclet, 332–335
Message-Driven Beans on server-side as, 358
overview of, 325–329
running application, 352–355
as type of EJB, 326
Index

**Enterprise JavaBeans** (Monson-Haefel), 325

**Entity beans**, 392–418
- adding CMP, 396–401
- adding ejbCreate and finder methods, 401–408
- adding Ice Hockey CMP data access object, 408–410
- defined, 326
- developing JPA with WTP, 414–418
- mapping objects to database using, 372–373
- preparing JBoss, Derby and XDoclet, 393–396
- testing CMP implementation, 410–414

**EPIC**, 674

**Errors**
- 404, 69, 287
- DocBook validator, 596, 598
- EJB, 152
- JavaScript, 245–247
- reporting, 38
- requirements vs., 38
- source editor highlighting, 219
- WSDL validation and naming, 643–644

**Essential XML Quick Reference** (Skonnard), 429

**Exadel Studio**, 670

**Expenses**, reducing development, 16–18

**Exporting**, workspace preferences, 110

**Extensible HTML (XHTML)**, 45

**Extensible Markup Language (XML)**
- built on SSE, 604
- describing structured/semi-structured data, 248–252
- Design and Source tabs, 250–252
- DocBook validation using, 595–596
- DTD using, 257–261
- HTTP on Internet using, 421–422
- J2EE Web applications and, 45
- resource resolution in, 646
- source editors for, 31
- SQL scrapbook pages in, 76
- transforming into HTML with XSLT, 252–257
- Web service interoperability using, 471
- WST tools for, 31–32

**Extensible Markup Language (XML) 1.0 (Third Edition)** [XML10], 248

**Extensible Stylesheet Language Transformations (XSLT)**
- features of, 204, 248
- J2EE Web applications and, 45
- transforming XML data into HTML, 252–257

**Extensions. See also Web Service Description Language (WSDL), creating extensions**
- content type, 601–602
- customized DocBook markers, 599
- DocBook extension plug-ins, 585
- DocBook validator, 587–592
- future versions of WTP, 584
- installing for WTP, 92
- new runtime target handlers, 562
- new server runtimes, 559
- wizard fragments and icons, 565–566

**Extreme programming (XP)**, 511

**F**

Facade layer, WSDL editor, 628–629

Façades, service, 311

Facets. See also **Project Facets page**
- defined, 551–552
- and runtime components, 563–565

Feature Details button, 103

Feedback, about this book, xxii

**File Associations page**, HTML, 212–213, 218

**File types**, supporting new. See **DocBook Filters**
- database connection, 378–379
- DocBook validator, 590
- WSDL editor, 623–624

find method, 392

Find page, Web Services Explorer, 497–498

finder methods, entity beans, 401–408

Firefox, 245–247

Flexible projects, 35, 161
FolderUriResolver.java listing, 664
Fonts, conventions used in this book, xxii
Formatting, source editor, 219
form.html listing, 366
forward method, JSP, 280
404 errors, handling, 69, 287
fullBuild property, DocBook validator, 590
Functional requirements tests
   overview of, 510
   running with HttpUnit, 521

G
Game form, simple, 413–414
Game with JPA annotations, 416–418
GameBean ejbCreate method listing, 402
GameBean.java listing, 403–408
GameDetail.java listing, 456
GameException.java listing, 457
GameFormat.java listing, 489–490
Game.java listing, 308–310
GameServlet.java listing, 412–413
GEF. See Graphical Editing Framework (GEF)
Generate WSIL command, 504
GenerateBindingAction.java listing, 632–634
Generic servers, 554, 566–570
Geronimo, 148
GET method, 280, 425
GetEndpoint method, 467, 472–473
GetGameDetail operation, update Web service, 455–456, 458
GetGameDetails method, JSP test client, 467–470
getimage method, LabelProvider, 616
getLogs method, 522
getParameter method, 69
getSchedule operation, 448, 452–454, 491
getSchedulingRule method, DocBook validator, 594
getServletConfig method, 522
getSession method, JSP, 280
getUser method, JSP, 280
GlassFish
   adding runtime target handler, 562
   adding server runtime support, 558–556
   creating server adapter plug-in, 556–558
   defining runtime server types, 561–562
   extending Server tools UI, 565–566
   facets and runtime components, 563–565
   generic server framework and, 566–570
   server runtime, 554–556
   testing server adapter, 573–580
GlassFish Runtime wizard, 574–576
glassfish.serverdef listing, 567–570
Global preferences, 110
Goals, Maven, 188
Google
   developing servlet that applies XSLT, 270–279
   generating interest in AJAX, 206
   non-support of XML files, 270
Grammar
   defining for XML documents with DTDs, 257
   in well-formed documents, 257
   in XML content models, 607–608
Graphic design, 203–204
Graphical Editing Framework (GEF)
   installing for WTP, 92
   as prerequisite for WTP, 44
   in WTP architecture, 28

H
Header, SOAP, 423
“Hello, world”. See Web Tools Platform (WTP), Quick Tour
hello-world.jsp listing, 61, 81
HelloServlet.java listing, 68, 80–81
helper extension, DocBook validator, 590
Hibernate
   developing JPA with WTP by using, 415
   mapping objects to database using, 373–374
   overview of, 130
Homesteading the Noosphere (Raymond), 23
HTML. See Hypertext Markup Language (HTML)

**HTML 4.01 Specification** (HTML401), 212

**The HTML Sourcebook: A Complete Guide to HTML** (Graham), 212

HTTP. See Hypertext Transfer Protocol (HTTP)

**HTTP Recording wizard**, 536–538

**HttpServletRequest object**, 119

**HttpUnit**, 528–533
   - creating system test with, 529–533
   - downloading, 529
   - overview of, 527–528
   - running functional tests with, 521

Hyperlinking, in Web architecture, 425

Hypertext Markup Language (HTML)
   - adding styles with CSS, 230–234
   - creating files, 211–218
   - creating source editors for, 31
   - data entry form validation, 237–247
   - editing with source editor, 218–230
   - J2EE Web pages containing, 45
   - screen scraping of, 421
   - transforming XML data into,
     252–257
   - XHTML, 45

Hypertext Transfer Protocol (HTTP), 289–295
   - modifying and resending messages,
     293–295
   - overview of, 289
   - recording test, 536–538
   - TCP/IP monitor and, 290
   - using with XML on Internet,
     421–422
   - viewing with TCP/IP monitor,
     291–293

I

**I-builds (integration builds)**, 94

IBM
   - 1.5 SDK requirement for Cactus, 522
   - development of WTP, 14–15
   - PHP Tools project of, 680–681
   - proposing WTP, 13

Rational Application Developer (RAD) for WebSphere Software, 670–671

IceHockey Jdcb DAO1 Implementation listing, 389–390

IceHockeyCMPDAOImpl.java listing, 408–410

IceHockeyDAOImpl.java listing, 316–320

IceHockeyFacade.java listing, 316

IceHockeyJdcbDAOImpl.java listing, 387–389

IceHockeyWebTest project, 514–515

Icons, extending Server tools UI, 565–566

IDE (integrated development environment), 14, 16–18, 583

Idempotence, 425

IEC (International Electrotechnical Commission), 26

IETF (Internet Engineering Task Force), 26

Image handles, 616–617

Importing, exported workspaces, 110

Incremental approach, integration testing, 520–521

Incremental property, DocBook validator, 589

**The Inmates Are Running the Asylum** (Cooper), 200

Input
   - designing Java Web applications, 119
   - JSP test client, 468, 472
   - layered Web application design, 121

Input controller, MVC
   - defined, 123–124
   - overview of, 124

Inquiry interface, 495

INRIA (Institut National de Recherche en Informatique), 15

inspection.wsil, 501, 504–505, 506

Install New Server dialog, 102–103

Install/Update wizard, 95–98

Installed runtimes
   - JBoss, 332
   - server preferences for, 107, 264–265

Instance variables, accessed by Cactus, 521–522

Institut National de Recherche en Informatique (INRIA), 15
Integrated development environment (IDE), 14, 16–18, 583
“Integrating Cloudscape and Tomcat” (Bader), 78
Integration builds (I-builds), 94
Integration tests
  with Cactus, 520–527
  as functional requirements tests, 510–511
  overview of, 520–521
Integration tests
  as functional requirements tests, 510–511
  overview of, 520–521
Interaction design, 200–202
Interfaces
  service, 312–314
  stateless session bean, 341–342
International Electrotechnical Commission (IEC), 26
International Organization for Standardization (ISO), 26
International Telecommunication Union (ITU), 26
Internet
  developing standards for, 26
  preferences, 106, 107
  WST tools for, 30
Internet Engineering Task Force (IETF), 26
Interoperability, Web services, 470–477
Introduction, 3–11
  contents of this book, 4–5
  League Planet Web site, 9–10
  organization of this book, 5–8
  overview of, 3–4
  source code examples, 8–9
Invoke a WSDL Operation page, Web Services Explorer, 501
Invoke button, 86
ISO (International Organization for Standardization), 26
ITU (International Telecommunication Union), 26
IWSDLValidator.java listing, 642

J
J2EE. See Java 2 Enterprise Edition (J2EE)
J2EE Module Dependencies
  adding dependency to utility project, 175–176
  adding/removing modules to EARs, 159–160
  implementing Web services, 446–447
J2EE Standard Tools (JST)
  creating, 25–27
  defined, 685
  EJB Tools component of, 374
  installing for WTP, 92
  server tools and APIs as components of, 553
  subproject, 34–37
  in WTP architecture, 28
J2EE Utility Projects
  adding dependency to, 175–176
  adding JARs to build path of, 176
  creating, 173–175
  creating for domain models, 301–304
  Java Build Path page, 176–177
J2SE Development Kit (JDK)
  developing JPA, 414
  obtaining and installing, 42
  required for developing JSP, 49–50, 92
  setup of, 103
J2SE (Java 2 Standard Edition), 44–45
J2SE Runtime Environment (JRE), 44, 49–50
Jakarta project, 262
jakarta*.jar, 166
JAR (Java archive) files, 148
Java 2 Enterprise Edition (J2EE)
  creating new Web projects, 141–148
  defined, 684
  Enterprise Applications. See
    Enterprise Applications (EARs)
  generating revenue by developing WTP, 20–22
  history of IDEs, 14
  IDEs available in 2003, 14
  for Java Web applications, 116–117
  JST tools for, 35
  modules, 140–141
  value proposition for tool vendors of, 16–18
Java 2 Enterprise Edition (J2EE), creating
  Web applications, 44–60
adding server runtime environment, 46–50
creating and editing JSP file, 56–57
creating dynamic Web project, 51–56
as iteration 1 of “Hello, world”, 41
overview of, 44–45
running JSP on server, 57–60
summary, 57–60
Java 3 Standard Edition (J2SE), 44–45
Java API for XML Processing (JAXP)
interface, 595
The Java API for XML Processing (JAXP)
[JSR63], 270
Java applets, 206
Java application frameworks, 128–130
Java Architecture for XML Binding
[JAXB], 257
Java archive (JAR) files, 148
Java Bean Identity, Web Service wizard, 461
Java Build Path page, Utility Project, 176–177
Java client proxy
generating, 464–468
generating for Query Web service client, 477–478
testing Web service with, 468–470
Java Community Process (JCP), 26, 684
Java Database Connectivity (JDBC)
Data tools accessing databases with, 71
mapping classes to database with, 386–389
mapping objects to database with, 371–372
replacing persistence implementation with, 389–390
testing data layer code, 390
Java Development Kit. See J2SE Development Kit (JDK)
Java Development Tools (JDT), 28, 57–60
Java Edit Model (JEM)
derived, 92
prerequisite for downloading WTP, 44
in WTP architecture, 28
Java EE 5 (Java Enterprise Edition 5), 679
Java Enterprise Edition 5 (Java EE 5), 679
Java Management Extension (JMX), 35, 263
Java Message Service (JMS), 358–367
adding queue to JBoss, 363
client, 358
as client-side of Message-Driven Beans, 358–359
creating Message-Driven Bean, 359–363
creating Web client, 363–366
overview of, 358–359
Java Persistence Architecture (JPA)
developing with WTP, 414–418
vs. entity beans, 372
mapping objects to database using, 373–374
overview of, 373
Tools project (Dali), 92, 679
Java Profiling, 543–545
Java projects, 139
Java service implementation, 455–459
Java Servlet Development Kit, 262
Java Specification Request (JSR), 36, 684
Java Utility Projects. See J2EE Utility Projects
Java-version command, 42
Java Web Application Archive (WAR) files, 147–148
Java Web applications, 116–120
Java Web tools, 669–673
JavaBeans, 44
Javadoc listings, 4
Javadoc tags, 35
JavaScript, 234–247
data entry form validation, 236–247
debugger, 245–247
e-mail address obfuscation, 234–239
J2EE Web pages containing, 45
overview of, 234
JavaScript Object Notation (JSON), 424
JavaServer Faces (JSFs)
application controller design, 125–126
defined, 26, 129
Oracle development of, 15
project, 36
Tools project, 678
view mechanisms, 126–127
WTP features for, 92
JavaServer Pages (JSPs)
adding Java scriplet to, 60–61
creating and editing, 56–57
debugging, 61–64
dynamically generating Web pages with, 280–289
generating test client, 464–468
generating Web pages, 45
Java Web applications using, 118–120
JDK required for development of, 49
JST tools for, 35–36
markup, 279–280
running on server, 57–60
test clients, 472
testing Web service with, 468–470
WTP architecture for debugging, 28
JavaServer Pages (Whitehead), 280
JAXB. See Java Architecture for XML Binding
JAX-RPC Web service standard, 36, 481–482
JAX-WS, 679
JAXP (Java API for XML Processing) interface, 595
JBoss
adding queue to, 363
CMP development with, 394–395, 397
creating EJB projects with, 336
defining for running application, 352–353
EJB development with, 148, 329–332
IDE for Eclipse, 671
WTP development with, 15
JBoss Server wizard, 330–331
JCP (Java Community Process), 26, 684
JDBC. See Java Database Connectivity (JDBC)
JDK. See J2SE Development Kit (JDK)
JDT (Java Development Tools), 28, 57–60
JEM. See Java Edit Model (JEM)
JMS. See Java Message Service (JMS)
JMX (Java Management Extension), 35, 263
JOFFAD, 181
JOnAS, 148
JPA. See Java Persistence Architecture (JPA)
JRE (J2SE Runtime Environment), 44, 49–50
JSFs. See JavaServer Faces (JSFs)
JSON (JavaScript Object Notation), 424
JSP editor, 56–57
JSP: JavaServer Pages (Burd), 280
JSPs. See JavaServer Pages (JSPs)
JSR 31: XML Data Binding Specification [JSR31], 257
JSR 45: Debugging Support for Other Languages [JSR45], 280
JSR (Java Specification Request), 36, 684
JST. See J2EE Standard Tools (JST)
JUnit JAR, 191
JUnit test case wizard, 190–192
“JUnit Test Infected” (Beck), 509
JUnit tests, 512–520
configuring for Cactus, 526–527
contributing, 39
creating HTTP recording test, 537–538
creating new project for, 513–515
creating system test with HttpUnit and, 529–533
creating test case, 515–518
of domain models, 320–324
limitations of, 520–521
with Maven, 190–193
test suites, 518–520

L
Label Decorations preference, Data tools, 107
LabelProvider, 616
LAMP, 206, 685
Launching preferences, servers, 107
Layers
service, 130–132
Web application, 115–116
Web application design, 120–122
League DAO interface listing, 386
League Planet
case study, 133–134
description of, 9–10
inspiring examples in book, 5
LeagueDAO interface listing, 315
LeagueFacade EJB 3.0 stateless session bean listing, 357
LeagueFacadeBean, 340, 344, 346–348
LeagueFacadeBean.java listing, 347–349
LeagueFacade.java listing, 312–313
LeagueFacadeImpl.java listing, 313–314
LeagueFacadeTest.java listing, 322–323
League.java listing, 306–307
Libraries
  getting HttpUnit, 530
  importing Struts into EAR project, 166, 168
Licenses
  Dynamic Web project, 54–55
  EJB Project validation, 337–338
  installing WTP via Update Manager, 98
  verifying WTP installation, 103–104
  WTP policy on redistributing 3PC, 100
List All WSDL Services page, Web Services Explorer, 504–505, 506–507
Literal use, SOAP binding, 461
LocalizedMessage object, 595–596
log4j*.jar, 166
Logical layers, physically distributing, 325
login method, JUnit tests, 517
login-user.jsp listing, 65
login.jsp listing, 285–286
LoginServlet.java, 282–283, 522–527
LoginServletTest.java listing, 525
logout method, JUnit tests, 517
logout.jsp listing, 286–287
Lomboz, 15
lookupFullname method, 78, 86–88
Margins, source editor indicators in, 219
markerIDs, 599
Markers, creating custom, 598
Markup, JSP, 279–280
Mastering JavaBeans (Roman et al.), 326
Mathematical Markup Language (MathML), 421
Maven, 180–196
  console output, 188–189
  creating project with, 183–185
  defined, 685
  defining Maven POM, 185–190
  description of conventions for, 182
  maintaining project dependencies to JARs, 175–176
  overview of, 180–183
  project information and reports with, 192–196
  unit tests with, 190–192
Maven: A Developer’s Notebook (Massol/O’Brien), 181
MBeans, 363
MDBs. See Message-Driven Beans (MDBs)
Meat and Poultry Markup Language (mpXML), 421
Mentoring services, 22
Message-Driven Beans (MDBs), 358–367
  adding queue to JBoss, 363
  creating, 359–363
  creating JMS Web client, 363–367
  defined, 326
  entity beans vs., 392
  overview of, 358–359
Message-log validator, 471, 474–476
Message-oriented middleware (MOM), 358
messages, SOAP
  formatting and processing Web services, 83
  monitoring, 87–88
  using JSP test client, 86–87
Method execution statistics view, TPTP, 544–545
Method stubs, Create Servlet wizard, 271–272
Methods
  checking messages for WS-I compliance, 472
Index

DocBookValidator, 594
REST architectural style, 425
Methods pane, JSP test client, 468
Mevenide, 188
Microsoft, Windows Communication Framework (WCF), 680
Middle tier, defined, 205
Model 1 architecture, 118–120
Model 2 architecture, 118
Model View Controller (MVC)
  application controller, 125–127
  input controller, 124
  Model 2 architecture as adaptation of, 118
  overview of, 123–124
  for Web, 123–127
Modules
  building Web client, 349–350
  creating EAR project with multiple, 165–171
  creating EJB projects, 337
  dependent, 165
  editing EAR, 159–160
  Maven Web, 183
  structural model for, 162–164
  types of J2EE, 164–165
  Web Application, 154–159
Modules, EJB
  adding to Enterprise Applications, 155–159
  creating EJB applications, 151
  creating in Enterprise Applications, 154–155
  defined, 148
MOM (message-oriented middleware), 358
Monitoring
  HTTP sessions, 289–295
  ports, with TCP/IP Monitor, 291–292
  SOAP messages, 87–88
  WTP newsgroup, 37
Monospace fonts, xxii
Mozilla Thunderbird, 37
mpXML (Meat and Poultry Markup Language), 421
Multi-tab editors, WST XML tool, 31
Multi-tiered distributed applications, 205

Multitier Model of Designing Enterprise Applications with the J2EE Platform, Second Edition (Singh), 205
MVC. See Model View Controller (MVC)
MyEclipse, 672

N

Naming conventions
  future coordinated Eclipse releases, 96
  servlets, 66
  validation for, 640–644
  Web service client proxies, 465
  XDoclet beans, 340
NamingConventionValidator.java listing, 642–643
Navigation pane, Web Services Explorer, 451–452
.NET programming, vs. J2EE, 14
New Cactus Test Case wizard, 523–527
New Class wizard, 305–306
New Connection wizard, 73–75, 376–378
New CSS File wizard, 231–233
New Dynamic Web Project wizard
  building Web client, 349–352
  creating Dynamic Web project, 268–269
  creating JUnit test project, 514–515
  testing server adapters, 576–577
New EJB Project wizard, 149–150, 336–339
New Enterprise Application Project wizard, 155–159
New Extension wizard, 559
New File wizard, 597
New HTML File wizard, 237–247
New HTML Page wizard, 212–213
New Java Class wizard, 588, 631
New Java Project wizard, 320–321, 536
New Java Server Page wizard, 350–352
New Java Utility Project wizard, 173–174
New JavaScript File wizard, 241–242
New JavaServer Page wizard, 56
New JSP wizard, 65–66, 283–284
New JUnit Test Case wizard, 320–324, 515–520
New Modules button, 157
New Plug-In Project wizard
  DocBook extension plug-in, 585
  resource resolution extension plug-in, 647–648
  server adapter plug-in, 556–558
  WSDL extension plug-in, 612
New Project wizard
  DocBook validator, 597
  Static Web project, 208–211
New Report wizard, 538–539
New Server Runtime wizard
  adding JBoss to workspace, 330–331
  adding server runtime environment, 48–49
  configuring servers, 264–265
  testing server adapter, 573–575
New SQP Scrapbook Page wizard, 379
New Static Web Project wizard, 208–211
New Utility Project wizard, 302–304
New Web Project wizard, 142
New wizard, 523–527
nextCatalog extension listing, 656
Nightly builds (N-builds), 94
The Non-Designer’s Web Book (Williams and Tollett), 203
Nonfunctional requirements tests, 510–511.
  See also Test and Performance Tools Platform (TPTP)
Noosphere, 23

O
O/R (Object-Relational) design, 371, 373–374
O/R (Object-Relational) mapping problem, 373
OASIS (Organization for the Advancement of Structured Information Standards),
  26, 654–657
Obfuscation, e-mail address, 234–239
Object models, 298, 304–310
Object-Oriented (OO) programming, 373
Object Relational Mapping (ORM) framework, 130
Object-Relational (O/R) design, 371, 373–374
Object-Relational (O/R) mapping problem, 373
ObjectWeb, 15
ObjectWeb Lomboz, 672
Online Help, 4
OO (Object-Oriented) programming, 373
Open content model, 607–608, 609
Open Registry page, Web Services Explorer, 496–497
Open Services Gateway Initiative (OSGi),
  128–129, 327
Open Source movement, 3, 16–18, 19–22
Oracle, WTP development, 15
Organization for the Advancement of Structured Information Standards (OASIS), 26, 654–657
ORM (Object Relational Mapping) framework, 130
OSGi Alliance, 128–129
OSGi. See Open Services Gateway Initiative (OSGi)
Output
  Data tools preference, 107
  designing Java Web applications, 120
  Maven console, 188–189
  Maven test, 191–192

P
Page flow, 126
Page IDs, 533
Passwords, JSP, 281, 287–288
PDE (Plug-in Development Environment), 573–580
Performance testing
  as nonfunctional requirement test, 510–511
  overview of, 533–540
  profiling with TPTP, 540–545
  with TPTP. See Test and Performance Tools Platform (TPTP)
Perl Web tools, 674
Persistence layer
  business tier interface to, 300
  creating APIs for transparency of, 370
defined, 369
designing, 122, 370–374
Persistence tier, 369–420
creating database, 375–385
data layer, 386–391
designing, 370–374
entity beans and. See Entity beans
iterations overview, 374–375
overview of, 369–370
Personas, 200–202
Perspectives, dynamic Web project, 54–56
PHP Tools project, 680–681
PHP Web tools, 674
PHPEclipse, 674
PicoContainer, 130, 326–327
Plain Old Java Objects (POJOs)
building domain models with, 298
business tier design and, 300
creating EJB 3.0 bean with, 356–358
defined, 686
Java Persistence Architecture based on, 414
testing domain models, 320–324
Plain Old XML (POX), 686
Platform APIs, 28
Plug-in Development Environment (PDE), 573–580
Plug-ins
developing WTP, 39
DocBook, 585
generating revenue with WTP, 19–20
resource resolution, 647–648
server adapter, 556–558
testing and debugging, 573–580
WSDL, 612
in WTP architecture, 27–28
plugin.xml file, 559–560
PMC. See Project Management Committee (PMC)
Point-to-point (PTP) messaging, JMS, 358–359
POJOs. See Plain Old Java Objects (POJOs)
POM. See Project Object Model (POM)
pom.xml listing, 193–194
Popup Dialog Selection, Web services, 109
Portability, 117
Portal servers, 207
Portlets, 207
POST method, JSP, 281
POX (Plain Old XML), 686
Preferences, 105–110
checking messages for WS-I compliance, 472–474
content types, 603
Data tools, 107
EJBDoclet, 334
Internet, 107
overview of, 106
server, 263–265
Server tools, 107
sharing settings, 110
snippet, 224
source editor, 219–221
template, 222
validation, 107–108, 251
Web and XML, 108
Web services, 108–109
XDoclet, 109
XML catalog, 656
Presentation layer, 115–116, 122, 128
Presentation logic, 199–200
Presentation tier, 199–295
adding HTML page, 211–218
adding interactivity. See JavaScript
adding server, 261–267
creating Dynamic Web projects, 267–269
creating static Web project, 208–211
CSS, 230–234
defined, 200
DTD, 257–261
editing HTML page with source editor, 218–230
graphic design, 203–204
interaction design, 200–202
introduction to, 199–200
JSP, 279–289
monitoring HTTP sessions, 289–295
役務, 270–279
snippets, 224–230
structure of, 204–207
templates, 221–224

Defined, 369
Designing, 122, 370–374
Persistence tier, 369–420
Creating database, 375–385
Data layer, 386–391
Designing, 370–374
Entity beans and. See Entity beans
Iterations overview, 374–375
Overview of, 369–370
Personas, 200–202
Perspectives, dynamic Web project, 54–56
PHP Tools project, 680–681
PHP Web tools, 674
PHPEclipse, 674
PicoContainer, 130, 326–327
Plain Old Java Objects (POJOs)
Building domain models with, 298
Business tier design and, 300
Creating EJB 3.0 bean with, 356–358
Defined, 686
Java Persistence Architecture based on, 414
Testing domain models, 320–324
Plain Old XML (POX), 686
Platform APIs, 28
Plug-in Development Environment (PDE), 573–580
Plug-ins
Developing WTP, 39
DocBook, 585
Generating revenue with WTP, 19–20
Resource resolution, 647–648
Server adapter, 556–558
Testing and debugging, 573–580
WSDL, 612
In WTP architecture, 27–28
Plugin.xml file, 559–560
PMC. See Project Management Committee (PMC)
Point-to-point (PTP) messaging, JMS, 358–359
POJOs. See Plain Old Java Objects (POJOs)
POM. See Project Object Model (POM)
Pom.xml listing, 193–194
Popup Dialog Selection, Web services, 109
Portability, 117
Portal servers, 207
Portlets, 207
POST method, JSP, 281
POX (Plain Old XML), 686
Preferences, 105–110
Checking messages for WS-I compliance, 472–474
Content types, 603
Data tools, 107
EJBDoclet, 334
Internet, 107
Overview of, 106
Server, 263–265
Server tools, 107
Sharing settings, 110
Snippet, 224
Source editor, 219–221
Template, 222
Validation, 107–108, 251
Web and XML, 108
Web services, 108–109
XDoclet, 109
XML catalog, 656
Presentation layer, 115–116, 122, 128
Presentation logic, 199–200
Presentation tier, 199–295
Adding HTML page, 211–218
Adding interactivity. See JavaScript
Adding server, 261–267
Creating Dynamic Web projects, 267–269
Creating static Web project, 208–211
CSS, 230–234
Defined, 200
DTD, 257–261
Editing HTML page with source editor, 218–230
Graphic design, 203–204
Interaction design, 200–202
Introduction to, 199–200
JSP, 279–289
Monitoring HTTP sessions, 289–295
Servlets, 270–279
Snippets, 224–230
Structure of, 204–207
Templates, 221–224
XML, 248–252
XSLT stylesheets, 252–257

Problems view, WTP validation
displaying DocBook validator errors in, 598
filtering DocBook markers from, 599–600
service element naming error message in, 643

Profile and Logging perspective, 544
Profile Compliance and Validation, Web services, 109, 472
Profiling with TPTP, 540–545
Project deliverables, 160

Project Facets page
EAR, 157–158
EJB applications, 149–151, 336
new Dynamic Web project, 52–53, 144
New Java Utility Project, 173–174, 303–304
Static Web project, 208, 210
testing server adapter, 575–577

Project Management Committee (PMC)
defined, 685
in structure of WTP, 23
of WTP development, 15

Project Navigator, 35
Project Object Model (POM)
content of, 185
creating for Web application, 185–190
defined, 686
Maven project directory structure in, 182
project information with, 193–196

Project Topology preference, Web services, 109

Projects
defined, 51
organizing. See Development project organization

Properties
DocBook validator, 589–591
generic server definition, 566–567
stateless session bean, 341
style rule, 230

Properties view, 617–627

Proxy Settings, Internet, 107
PTP (point-to-point) messaging, JMS, 358–359
Public identifiers (publicId), 649, 653–654
Publications, Web service, 495
Publish-and-subscribe (pubsub) messages, 358–359

Publishing
adding new servers, 570–573
defined, 32
dividing Web module into multiple projects, 180
dynamic Web project, 147–148
EAR, 154–155
EJB, 152–153
flexibility of DocBook, 584
Web services. See Web services, discovering and publishing
Publishing interface, 495
pubsub (publish-and-subscribe) messages, 358–359
PyDev, 675
Python Web tools, 675

Q
Query parameters
adding Java scriplet to JSPs, 61
creating servlets, 69
debugging, 63

Query Results page, Web Services Explorer, 498–499
Query Web service client, 477–478
Query.java, 449–451
QuerySOAPImpl.java listing, 448
Query.wsdl listing, 437–438
Queues, JMS, 359, 363
Quick tour. See Web Tools Platform (WTP), quick tour

R
R-builds, 93–94
RadRails, 675
RAR (Resource Adapter for J2CA), 164
Rational Application Developer (RAD), 15, 670–671
Recommendations, W3C, 422
Recording test, HTTP, 536–538
Redo, with source editor, 219

References
AJAX, 205–206
Apache Derby, 78
Cloudscape and Tomcat integration, 78
cookies, 289
CSS, 230
Dojo development, 206
DTDs, 257
EJBs, 325, 326
EMF, 614
graphic design, 205
HTML, 212
interaction design, 200
Java standard for XML binding, 257
JavaScript, 234
JSP markup, 280
Maven, 181
multi-tiered design, 205
noospheres, 23
REST architectural style, 425
REST for Web services, 426
SQL, 379
structured source editors, 219
on testing, 509
WTP development with Eclipse, 39
XML, 248
XSD, 429
XSLT, 248

References, online
Adobe Flash, 116
AJAX toolkit, Dojo, 206
Cactus, 521, 522
Derby, 71–72
DocBook, 583
EJB containers, 148
example code, 7, 11
feedback about this book, xxii
finding particular references, 7
Firefox, 245
GlassFish, 554
graphic design, 203
HttpUnit, 529
Java Web tools, 669–673
JBoss, 330
JDK, 42
JOFFAD, 181
Maven, 182, 184
Perl Web tools, 674
PHP Web tools, 674
Python Web tools, 675
reporting bugs to Eclipse, xxi
Ruby Web tools, 675
SOAP schema, 620
Tomcat, 46–47, 265
TPTP, 535
Web site for this book, xxi–xxii
WST subproject, 29
WTP 2.0, 677–681
WTP bug tracking system, 38
WTP downloads page, 98
WTP installation, 43
WTP newsgroup, 37
WTP wizards and project structure, 148
XDoclet, 333
XSLT, 248

Refresh command, 384
Registry Details page, Web Services Explorer, 496–497
Release builds (R-builds), 93–94
Remote Method Invocation (RMI), 369
remove method, entity beans, 392
Replacing persistence implementation with JDBC, 389–390
Reports
Maven project, 192–196
for performance test using TPTP, 538–539

Representation State Transfer (REST), 424–427
request instance variable, 521
Requirements
errors vs., 38
suggesting WTP improvements, 38
Resource Adapter for J2CA (RAR), 164
Resource Management, 109
Resource resolution, customizing, 645–666
contributing resources to XML catalog. See XML catalog
creating extension plug-in, 647–648
creating folder URI resolver, 661–664
defined, 646
implementing, 657–659
overview of, 645–647
URI resolution framework, 659–661

Resource resolution strategy, 657–665
creating folder URI resolver, 661–665
defined, 646
overview of, 657–659
URI resolution framework, 659–661

Resources
defined, 646
overview of, 164
REST architectural style, 424

response instance variable, 522

REST. See Representation State Transfer (REST)

Result pane, JSP test client, 468, 472

Revenue, generating, 19–22

Rich desktop applications, 117

RMI (Remote Method Invocation), 369

RPC style, SOAP binding, 461

Ruby Web tools, 675

Run As command, 30, 57–58
run Extension, 588–589
run method, 631

Run On Server wizard
configuring servlets, 275–278
developing session EJBs, 352–355
running JSP on server, 57–59
testing server adapters, 577–580

Run SQL, 382

Run wizard, Cactus, 526

Runtime. See Server runtime environments (runtime)

Ryman, Arthur, xxvi

S

S-builds (stable builds), 94
Sans serif fonts, xxii

SAP NetWeaver Developer Studio, 672

Scenario Defaults, Web services, 109
schedule.css.html listing, 230–231
schedule.dtd.xml listing, 259–260
schedule.js.html listing, 235

schedule.css listing, 232–233, 490
schedule.dtd listing, 258–259
schedule.html listing, 215–218
schedule.jsp listing, 351–352, 488–489
ScheduleServlet.java listing, 273–274, 486–487
schedule.xml listing, 250, 255–256, 430–431
schedule.xsd listing, 432–434, 448
schedule.xsl listing, 253–255

Schemas
adding catalog of resources to XML catalog, 654–657
adding single resource to XML catalog, 651–654
contributing resources to XML catalog, 648–650
registering for resource resolution in XML catalog, 650–651

Scopes
defining WTP, 23–24
defining WTP subproject, 25–26
JSP documents and, 279

score-confirmation.jsp listing, 485–486
score-form.html listing, 237–238
score-form.jsp listing, 483–484
score-validator.js listing, 242–243, 491
ScoreException.java listing, 457–458

Screen scraping, 421

Scriplets
adding to JSP, 60–61
debugging JSP, 61–64
markup for JSP with, 279

SDOs (Standards Development Organizations), 26

selectionChanged method, 631
Selector style rule, 230

Semantic gap, in OO programming, 373

Serialization, Java, 369

Server adapters
adding to WTP, 554
defined, 552
JST, 34–35
plug-ins, 556–558
supporting server runtime environments, 29, 262–263, 265
testing and debugging plug-ins, 573–580
Server and Runtime preference, Web services, 109

Server runtime environments (runtime)
adding to workspace, 29, 46–51, 262–263
business layer not requiring, 300
Cactus test warning, 522
defined, 551–552
developing JPA with WTP, 415
installing third-party content, 101–102
libraries and, 143
obtaining and installing, 262
structural model for, 162–164
supporting EJBs, 329–332

Server Startup page, Web Service Client wizard, 465–466
Server Startup page, Web Service wizard, 442–443

Server tools
extending UI for new server, 565–566
functions of, 553
JST, 34–35
preferences, 106–107
WST, 29–30

Servers
adding dynamic Web projects to, 263
creating dynamic Web projects, 261–267
defined, 551–552
delays during runtime, 355
deploying application to, 352–355
portal vs. edge, 207
running JSP on, 57–60

Servers, adding new, 551–581
extending server tools UI, 565–566
facets and runtime components, 563–565
generic server definition, 566–570
GlassFish server runtime, 554–556
new runtime target handler, 562
new type for runtime, 561–562
overview of, 551–554
publishers, 570–573
server adapter plug-ins, 556–558
support for runtime, 558–561
testing server adapter, 573–580
writing generic server adapter, 554

Servers view
displaying new Server in, 277–278
J2EE Module Dependencies, 446–447
running session EJB application, 355
viewing HTTP sessions with TCP/IP Monitor, 291

Service definition, 441
Service Details page, Web Services Explorer, 498–499

Service infrastructures, 113
Service layer, 300, 310–314

Service-Oriented Architecture (SOA)
for component architecture problems, 297
overview of, 130–132
SOA Tools platform project, 681

Services
adding service layer to application, 130–132
consuming, 132
defining, 130
providing service layer in League Planet case study, 133–134

Servlet engine, 262

Servlets, 64–70
adding dynamic content with, 270–279
creating, 65–69
debugging, 69–70
developing user interface based on, 478–480
development of, 262
integrating testing. See Cactus
Java Web applications using, 118–120
JST tools for, 35
overview of, 64–65

Session beans. See Enterprise JavaBeans (EJBs), session

Session Façade, EJB, 327–328
session instance variable, 522
Session-scoped objects, 279
Sessions, HTTP. See Hypertext Transfer Protocol (HTTP)
setActivePart method, 631
setEndpoint method, 467, 472–473
setInitParameter method, 522
setMethods method, CMP, 401
setUp method, Cactus, 525
setUp method, JUnit, 515, 517–518
Sharing settings, preferences, 110
Simple Object Access Protocol (SOAP)
  1.2 platform, 680
  adding extensibility elements to
  WSDL editor, 617–627
  binding in WSDL 1.1, 609–610
  customizing extensibility elements in
  WSDL editor design view, 614–617
  defined, 686
  deploying Java class as Web service,
  460–462
  interoperability of Web services and,
  471
  overview of, 423–424
  REST style Web services and,
  426–427
  WSDL 1.1 binding for 1.2, 610
Simple SOAP Binding Profile (SSBP), 471
site goals, Maven, 188, 191, 196
sjsas.xml listing, 570–573
Sliders, Web Service wizard, 83–85
Snippets, 224–230
Snippets View, WST, 33
SOA. See Service-Oriented Architecture
  (SOA)
SOA Tools platform (STP) project, 681
SOAP. See Simple Object Access Protocol
  (SOAP)
SOAP engine, 83–85
SOAPExtensibilityElementFilter.java listing,
  625–626
SOAPLabelProvider.java listing, 616,
  622–623, 625
Sorting, by base time, 544–545
Source code examples, 8–9
Source editors
  creating with templates, 221–224
  editing HTML page with, 218–230
  HTML, 214–215
  overview of, 218–219
  SSE for developing, 31
  user preferences controlling, 219–221
  using snippets, 224–229
Source preferences, 108
Source tab, XML editor, 250
Source view, WSDL editor, 613
Spammers, e-mail, 234
Specify Service Project Settings dialog, 441–442
Spring Framework, 129, 326–327
SQL. See Structured Query Language
  (SQL)
SQL Scrapbook Editor, 33, 75–78
src directory, 182–183
SSBP (Simple SOAP Binding Profile), 471
SSE. See Structured source editing (SSE)
  framework
Stable builds (S-builds), 94
Stand-alone components, EJB projects, 148
Stand-alone Web resources, 646
Standards
  developing J2EE, 23–24
  Internet and Web, 26
  J2EE Web application, 141–142
  role of SDOs in, 26
Standards Development Organizations
  (SDOs), 26
Stateless session beans, 339–349
States, REST architectural style, 425
Static Web projects
  adding HTML page to, 208–211
  creating, 208–211
  defined, 141
  editing HTML page with source
  editor, 211–218
  overview of, 208
Status pane, Web Services Explorer, 452,
  501–502
STP (SOA Tools platform) project, 681
Structural model, Web project
  defined, 161
  Maven-style, 184
  overview of, 162–164
Structure, presentation tier, 204–207
Structured Query Language (SQL)
  accessing relational databases, 45
  adding tables to databases, 379–383
  mapping objects to databases,
  371–372
  using SQL Scrapbook Editor, 75–78
Structured source editing (SSE) framework
overview of, 604
WSDL editor extending, 613–614
WST tools for, 31
Structured source editors
JSP, 280
overview of, 218–219
templates, 221–224
user preferences controlling, 218–219
using snippets, 224–229
Structured Text Editors preferences, 219–221
Struts
application controller design,
125–126
defined, 129
importing into EAR project, 166, 168
struts*.jar libraries, 166, 186
Styles
preferences, 108
rules for, 230
SOAP, 461
specifying with CSS, 230
Stylesheets
containing list of style rules, 230
CSS. See Cascading Style Sheets (CSS)
separating Web page from content
with, 203
XSLT. See Extensible Stylesheet
Language Transformations (XSLT)
Subprojects, WTP
J2EE Standard Tools, 34–37
overview of, 24–27
Web Standard Tools, 29–34
Syntax highlighting, 219
System identifiers (systemId), 649, 653–654
System testing, with HttpUnit, 528–533
System tests, 510–511, 528–533
systemId (system identifiers), 649,
653–654
TCP/IP Monitor
configuring JSP test client for,
472–474
modifying and resending messages,
293–295
session tracking, 290–291
viewing HTTP sessions, 291–293
TCP/IP Monitor View, 87–88
Teams, development, 161, 510
tearDown method, Cactus test, 525
tearDown method, JUnit, 515, 517–518
Templates
for HTML page, 214
for JSP, 284–285
overview of, 221–224
preferences, 108
snippets vs., 226–229
Test and Performance Tools Platform
(TPTP), 533–540
creating HTTP recording test,
536–538
creating performance test project, 536
generating report, 538–539
installing, 535–536
overview of, 533–534
profiling with, 540–545
Test case, JUnit, 513, 515–520
Test client, JSP, 86
Test Connection button, 74–75
Test Facility Defaults, Web services, 109
Test Methods page, New Cactus Test Case
wizard, 524
Test suite, JUnit, 513, 518–520
testGetUser method, Cactus, 525
Testing, 509–547
advantages of early user, 16
automated, 511–512
for bugs, 39
CMP implementation, 410–414
data layer code, 390–391
database connection to Derby, 378
development considerations, 161
domain models, 320–324
for integration, with Cactus, 520–528
with JUnit, 512–520
naming convention validator, 643
overview of, 509–511
T
Table editor, 384–385
Tables, 379–385
Tag libraries (taglibs), 126–127
Tags, JSP markup, 279
performance with TPTP, 533–540
profiling with TPTP, 540–545
session EJBs, 355
system with HttpUnit, 528–533
Top-Down Web services, 451–454
Web services for interoperability, 470–477
Text Editor preferences, 219–221
Thin clients, 116, 117
Third-Party Content (3PC), 92, 100–103
Tier-0, 205
Tier-1, 205
Tier-2, 205
Tier-3, 205
Tomcat
adding TCP/IP Monitor to, 291
adding to server runtime environment, 46–50
adding to workspace, 262–267
deploying Top-Down Web services, 440, 445
history of, 46, 262
launching in JVM process, 60
Tools, 669–675
developing set of J2EE, 24
generating revenue with WTP, 22
Java Web, 669–673
Perl Web, 674
PHP Web, 674
Python Web, 675
Ruby Web, 675
using URI resolution framework in, 660–661
Top-down development, 85. See also Web services, Top-Down development
Topics, JMS, 359, 363
TOPLink, 373–374, 415
TPTP. See Test and Performance Tools Platform (TPTP)
TPTP URL (JUnit) Test Definition Code Generation wizard, 537–538
Training, WTP, 21–22
Transactions, EJB bean-managed vs. container-managed, 343–344
Transformation API for XML (TrAX), 270, 274–275
Tutorials, writing WTP, 39

U

UDDI. See Universal Description, Discovery, and Integration (UDDI)
UDDI4J, 495–496
Understanding the New SQL: A Complete Guide (Melton), 379
Undo, with source editor, 219
Uniform interfaces, REST, 425
Uniform Resource Identifiers (URIs), REST architectural style, 424
Uniform Resource Locator (URL)
creating HTTP recording test, 537–538
defined, 687
not revealing implementation technology in, 478
session tracking by rewriting, 289
specifying for Cactus tests, 527
WSL Internet tools for, 30
Uniform Resource Locator (URL) mapping
Create Servlet wizard, 271–272
creating login servlet, 282–283
creating servlet, 66
Unit tests
with Cactus, 521
as functional requirements tests, 510–511
with JUnit. See JUnit tests
with Maven, 190–192
Universal Description, Discovery, and Integration (UDDI)
accessing registries, 495
cloud, 496
defined, 687
searching registry for Web services, 495–501
Web Service Explorer support for, 32
Unknown league unknown schedule page, 491
Update Manager
installing WTP via, 95–98
overview of, 92–93
updating WTP with, 104–105
Update Web service, 455–456, 464–468
Update.java listing, 458–459
Updates
installing WTP via Update Manager, 96–97
WTP, 104–105
UpdateScore method, 467, 468–469
UpdateScore operation, update Web service, 455–457, 458
UpdateScoreServlet.java listing, 481–482
UpdateScoreTest.java listing, 530–532
Update.wsdl, 462–463
URI resolution framework, 647, 659–665
URIResolverExtension.java listing, 663
URIs (Uniform Resource Identifiers), REST architectural style, 424
URL. See Uniform Resource Locator (URL); Uniform Resource Locator (URL) mapping
User community
additional Open Source costs, 18
becoming part of WTP, 37
eyear testing by, 16
growing WTP, 39
User interface (UI). See also Presentation tier
extending Server tools, 565–566
presentation logic as, 199–200
testing Web services in Web applications, 491–494
User interface (UI), importing code, 480–491
GameFormat.java, 489–490
overview of, 489
schedule.css, 490
schedule.jsp, 488–489
ScheduleServlet.java, 486–487
score-confirmation.jsp, 485–486
score-form.jsp, 483–484
score-validator.js, 491
UpdateScoreServlet.java, 481–482
validator.css, 490
userId, 281, 287–288
User.java listing, 281–282
UserTest.java, 516–518
Using SQL (Groff), 379
Utility class, XDoclet, 352
Utility components, WST, 33–34
Utility Modules, JARs, 164
Utility Projects. See J2EE Utility Projects

V
Validate command, 251
Validate menu command, 257, 261
validate method, DocBook validator, 594
Validate WS-I Message Log File wizard, 474–476
validateInJob method, DocBook validator, 594
Validation
client-side, 204–205
DocBook. See DocBook validator
EJB Project, 337–338
JavaScript, data entry form, 236–247
preferences, 106, 107–108
with WSDL validator. See WSDL validator
WTP framework for, 586–587
XML, 250–251, 257–261, 656
Validation Framework, WST, 34
validator.css listing, 241, 490
Validators, Web project, 140
Variables, denoting template, 222
Vendors
.NET programming and, 14
generating revenue, 19–22
history of J2EE IDEs, 13–14
reducing development expense, 16–18
supporting J2EE standards, 24
supporting WTP, 15
WTP policy on redistributing 3PC, 100–101
Verbs (methods), REST architectural style, 425
Verification, WTP installation, 103–104
Views
database, 73
Model View Controller, 127
types of XSD editor graphical, 434–435
Visual Studio .NET, 14

W
W3C. See World Wide Web Consortium (W3C)
W3C Note, 422, 429
W4T Eclipse, 672–673
WAR (Web Archive), 35

Warnings
  disabling when using DocBook validator, 596
  removing for WTP SOAP namespace, 611

WCF (Windows Communication Framework), 680

Web
  App Libraries category, 184
  development of standards for, 26
  evolving landscape of, 113–115
  and XML preferences, 106, 108

Web application architecture and design, 113–135
  case study: League Planet, 133–134
  Java application frameworks, 128–130
  Java Web applications, 116
  layered, 120–122
  Model View Controller for, 123–127
  Service-Oriented Architecture, 130–132
  tiers or layers of, 115–116
  Web landscape, 113–115

Web application servers
  defined, 29
  vs. Web servers, 261–262

Web applications, J2EE, 44–60
  adding server runtime environment, 46–50
  creating and editing JSP file, 56–57
  creating dynamic Web project, 51–56
  as iteration 1 of “Hello, world”, 41
  overview of, 44–45
  running JSP on server, 57–60
  as scope of WTP, 23
  summary, 57–60

Web applications (modules)
  creating, 141–148
  defined, 551–552
  libraries, 166
  managing classpath, 175–176
  using Web services in. See Web services, in Web applications

Web Archive (WAR), 35

Web containers, 262

Web content folder, 210–211

Web Design in a Nutshell: A Desktop Quick Reference (Niederst), 212, 230, 234

WEB-INF/lib directory, 78, 166, 184

web1db.sqlpage listing, 77

Web module
  adding to workspace, 51–56
  creating stateless session bean, 349–352
  dividing into multiple projects, 171–180
  Maven, 183

Web Module page, Dynamic Web project, 52, 54, 144–145

Web pages
  Web services vs., 82
  WST tools for, 31

Web Pages That Suck (Flanders and Willis), 203

Web project types, 138–160
  creating EJB applications, 148–154
  creating enterprise applications, 154–160
  creating Web applications, 141–148
  J2EE modules, 140
  overview of, 138
  Web projects, 139–140

Web projects
  adding to EAR, 167
  creating new, 142–148
  defined, 161
  dynamic, 141
  overview of, 139–140
  static, 141

Web projects, advanced, 160–165
  dependent modules, 165
  modeling developer view, 162–164
  modules, 164–165
  overview of, 160–161
  resources, 164

Web Service Client test page, 467

Web Service Description Language (WSDL) 2.0 platform, 680
  defined, 687
  editor for, 32
interoperability of Web services, 471
invoking WS-I message-log validator, 474–476
overview of, 422–423
REST style Web services, 426–427
searching UDDI registry for Web services, 498–501
top-down Web services, 435–439
Web Service wizard generating, 86
in Web services development, 45
Web Service Description Language (WSDL), creating extensions, 607–644
adding custom actions to editor’s design view, 627–635
adding extensibility elements to editor, 617–627
customizing editor’s design view, 614–617
overview of, 607–611
plug-in, 611
validation, 635–644
for WSDL editor, 611–614
Web Service Explorer, 32, 100
Web Service Inspection Language (WSIL) overview of, 501–502
publishing Web services information, 502–508
Web Service Explorer supporting, 32
Web Service Proxy page, Web Service Client wizard, 465–466
Web Service Validation Tools (WSVT), 26
Web service wizard defined, 32, 34
deploying Bottom-Up Web services, 460–462
deploying Top-Down Web services, 440–446
deploying Web services, 83–86
generating Java client proxy and JSP test client, 464–468
using JSP test client, 468–470
Web services, 83–89, 421–508
Ant tasks, 444
deploying, 83–86
discovery, 495
generating client proxies, 464–470
history of, 421–422
JST tools for, 36–37
monitoring SOAP messages, 87–88
overview of, 82–83
preferences, 106, 108–109
publication, 495
REST style, 424–427
REST style Web services, 426–427
testing for interoperability, 470–477
using test client, 86–87
WSDL, 422–423
WST tools for, 32–33
Web services, Bottom-Up development, 454–464
deploying, 460–464
developing Java service implementation, 455–460
overview of, 454–455
Web services, discovering and publishing, 494–508
overview of, 494–495
UDDI, 495–501
WSIL, 501–508
Web Services Explorer defined, 496
publishing Web services with WSIL, 504–508
testing Top-Down Web services with, 451–454
XMethods UDDI registry in, 496–501
Web services, in Web applications, 477–494
creating servlets, 478–480
generating Query Web Service client, 477–478
importing user interface code, 480–491
overview of, 477
testing user interface, 491–494
Web Services Interoperability Organization (WS-I)
checking messages for compliance with, 471–477
defined, 26
Test Tools, 32–33
validator, 611
Web services, Top-Down development, 428–454
deploying, 440–446
implementing, 446–451
overview of, 428–429
testing with Web Services Explorer, 451–454
WSDL, 435–439
XSD, 429–435
Web Services Validation Tools (WSVT)
Technology project, 471
Web Standard Tools (WST)
creating, 25–27
Data Tools component of, 374
defined, 687
installing for WTP, 92
server tools and APIs as components of, 553
in WTP architecture, 28
Web Standard Tools (WST), subproject, 29–34
Data tools, 33
Internet tools, 30
Server Tools, 29–30
Structured Source Editor framework, 31
utility components, 33–34
Web page tools, 31
Web Service tools, 32–33
XML tools, 31–32
Web-Tier Application Framework Design of Designing Enterprise Applications with the J2EE™ Platform, Second Edition (Singh), 118
Web Tools Platform (WTP), 13–40
2.0 platform, 327, 677–681
architecture of, 27–28
contributing to, 37–40
defined, 3
EJB 3.0 development with, 356–358
generating revenue, 19–22
history of, 13–15
JPA development with, 414–418
JST subproject in, 34–37
maintenance releases of, xix
reducing development expenses, 16–18
scope, 23–24
subprojects, 24–27, 29–34
validation framework, 586–587
Web Tools Platform (WTP), installing, 91–105
build types, 92–95
configuring, 105–110
installable components, 91–92
JDK, 103
third-party content, 100–103
verifying installation, 103–104
via Update Manager, 95–98
via zip files, 98–100
Web Tools Platform (WTP), quick tour, 41–89
installing Eclipse and WTP, 43–44
installing JDK, 42
installing WTP, 43–44
Iteration 1. See Java 2 Enterprise Edition (J2EE), creating Web applications
Iteration 2. See Scriplets; Servlets
Iteration 3. See Database access
Iteration 4. See Web services
iterations of, 41–42
webContent folder
creating new dynamic Web project, 145–147
creating new JSP, 283–284
dividing Web module into multiple projects, 176, 178
link to Management, 177–178
webdoclet, 109
WebLogic application server, 18, 129, 552, 554
WebSphere application server, 17, 129, 670
WebSphere Studio Application Developer, 13–15
Web.xml listing, 364, 526, 645
Well-formed documents, 257
Wikipedia, 7
Windows Communication Framework (WCF), 680
Wizards, online resources for, 148
WORA (“Write once, run anywhere”) principle, 18
Workspace. See also Web Tools Platform (WTP), installing
adding Web module to, 51–56
configuring WTP, 105–110
Index

defined, 51
updating WTP, 104–105
World Wide Web Consortium (W3C) defined, 26
WSDL, 422
WSDL 1.1 binding for SOAP 1.2, 610
XSD, 429
“Write once, run anywhere” (WORA) principle, 18
WS-I. See Web Services Interoperability Organization (WS-I)
WS-* specifications, 427, 680
WSDL. See Web Service Description Language (WSDL)
WSDL Binding Details page, Web Services Explorer, 498, 500
WSDL validator, 635–644
checking messages for WS-I compliance, 471
contributing custom validation rules, 640–644
contributing to WSDL 1.1 validation, 636–640
overview of, 635
WSIL. See Web Service Inspection Language (WSIL)
WSIL Service Details page, Web Services Explorer, 508
WST. See Web Standard Tools (WST)
WSVT (Web Service Validation Tools), 26, 471
WTP SOAP binding generation extension in plugin.xml listing, 630
wtpsoap.xsd listing, 620
WYSIWYG (“What You See Is What You Get”) editing, 211

X

XDoclet
creating EJB applications, 150–151, 332–335
developing CMPs with, 394–396
EJB utility class, 352
preferences, 106, 109
processing Javadoc tags, 35
unchecking option when creating servlet, 66
XDoclet EJB wizard, 339–343
XHTML (extensible HTML), 45
XHTML™ 1.0 The Extensible HyperText Markup Language (Second Edition) [XHTML], 212
XMethods
Home page, 502–503
Programmatic interfaces to, 502–503
UDDI registry, 496–501
viewing WSIL document published at, 502–503
XML. See Extensible Markup Language (XML)
XML: A Primer (St. Laurent), 248, 257
XML catalog
adding catalog of resources to, 654–657
adding single resource to, 651–654
contributing resources to, 648–650
overview of, 650–651
preferences, 108
XML Schema Description (XSD)
adding new content using annotations, 607
developing Web services with, 45, 429–435
overview of, 429
WSL tools for Internet, 30
WST tools for XML, 31–32
XML Schema Part 0:Primer [XSD10-Part0], 429
XP (extreme programming), 617
XML Schema Description (XSD)XSD. See XML Schema Description (XSD)
XSL Transformations (XSLT) Version 1.0 [XSLT10], 248
XSLT. See Extensible Stylesheet Language Transformations (XSLT)
XSLT Reference (Nic), 248
XSLT (Tidwell), 248

Z

Zend, 681
Zip files, 92–93, 98–100