



Is JDeveloper Ready for Prime Time?

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Agenda

- ◆ Survey
- ◆ Background
- ◆ Java
- ◆ BC4J
- ◆ JDeveloper 9i
 - What's new?
 - Useful tips





Survey

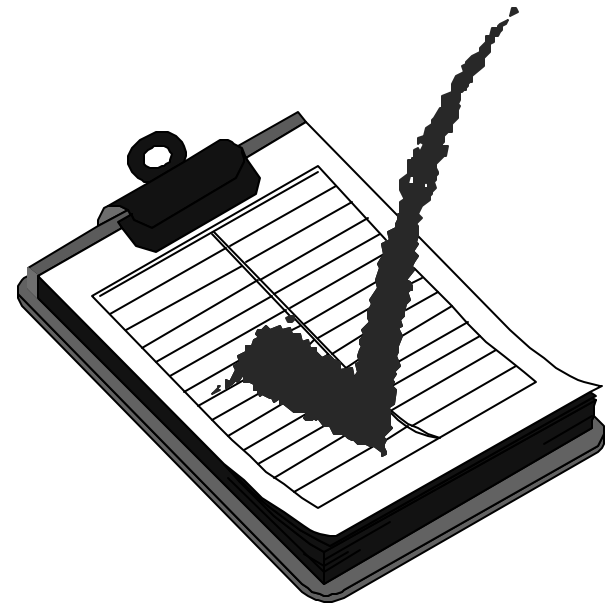
◆ Who is using Oracle Developer

- 1-2 years
- 2-5 years
- 5-15 years

◆ Who is using Java now?

- 1-2 years
- 2-5 years
- 5-15 years

◆ Who has a need to move to Java now?





JDeveloper History

- ◆ Oracle bought some code for Borland's J-Builder in 1995.
- ◆ JDeveloper 1.0
 - More or less useless
- ◆ JDeveloper 2.0
 - Still useless

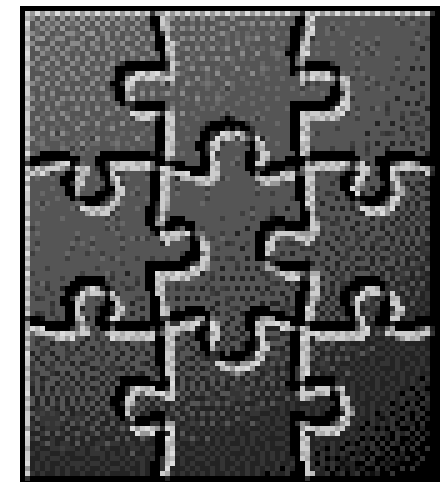


- ◆ JDeveloper 3.0
 - BC4J & DAC
 - Finally the right idea!
- ◆ JDeveloper 3.2
 - Bug fixes
- ◆ JDeveloper 9i
 - Big rewrite
 - Change in direction



Where Does JDeveloper Fit?

- ◆ “There are only two products other than the database”
 - Oracle 9i Application Server - the web server
 - The development products
- ◆ JDeveloper has lots of market competition
 - Visual Café - Symantec
 - JBuilder





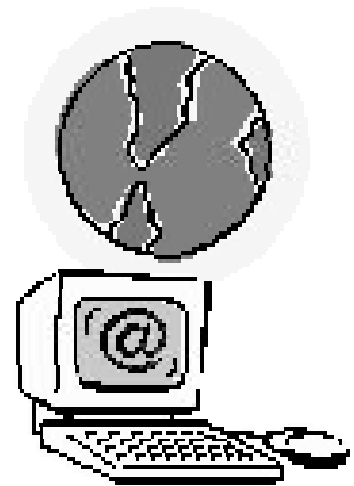
JDeveloper in the Development World

◆ Weaknesses

- Not **the** perfect IDE
 - Rated high but not the highest by PC Magazine (12/19/2000)
 - Ease of use is livable; better in 9i
- It has no HTML layout editor

◆ Strengths

- All of the benefits of an IDE
- It's an Oracle product.
- Extensible - wizards, property inspectors (customizers), toolbars, code generators
- Excellent Oracle database connectivity
- Supports **all** Java development



Extremely important!





JDeveloper's Long-Term Vision

- ◆ A fully integrated design and development environment
- ◆ Full UML integration
- ◆ The vision of what Designer and Developer never fully achieved
- ◆ Probably never integrate into Designer....maybe

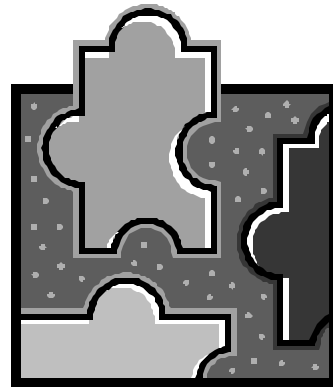


Background



Where JDeveloper fits today

- ◆ Good tool to build Java applications
- ◆ Best tool for building Oracle-based Java applications
- ◆ “Part” of the solution for building JSPs



Background



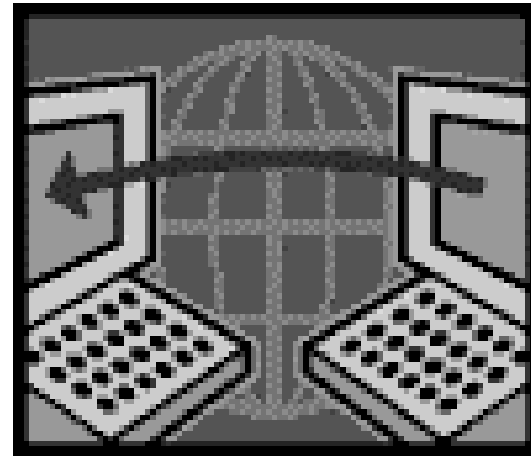
Is JDeveloper ready for production use?

- ◆ Client/Server style application development
 - Yes (but it will take time)
- ◆ Web development
 - Probably (but it will take a LONG time)
- ◆ There was one person at ODTUG who seemed to be building simple systems successfully with JDeveloper and BC4J.



Is Java all you need to deploy on the Web?

- ◆ NO!!!!
- ◆ Java Deployment
 - JSP - Web
 - Applet – Web internal
 - Applications - CIS
- ◆ Each alternative requires different tools and languages



Why use Java?



Moving to a Java-Based Development Environment

- ◆ Don't abandon your old development environment immediately.
 - Java is still bleeding-edge technology.
- ◆ Java alone is not enough.
 - You still need to know HTML, JavaScript, and other editors (FrontPage, Dreamweaver)



Java Applications

- ◆ Client-server
- ◆ Java program runs on PCs JVM

Required Tools

- ◆ JDeveloper

Oracle®
JDeveloper



Required Languages

- ◆ Java
- ◆ XML
- ◆ JDBC
- ◆ SQLJ



Java Applets

Java applications running over a browser

Required Tools

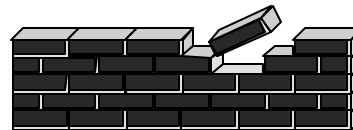
- ◆ JDeveloper
- ◆ Apache or IAS

Required Languages

- ◆ Java
- ◆ XML
- ◆ JDBC
- ◆ SQLJ

◆ Other problems - Security

➤ Firewalls



➤ Secure Sockets



Deploying in Java



JSPs



JAVASERVER PAGES™
DYNAMICALLY GENERATED WEB CONTENT

- ❖ Sell over the Internet
- ❖ Java back end, HTML front end

Required Tools

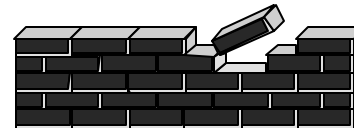
- ◆ JDeveloper
- ◆ Apache or IAS
- ◆ DreamWeaver or FrontPage

Required Languages

- ◆ Java
- ◆ HTML
- ◆ JavaScript
- ◆ XML, JDBC, SQLJ

◆ Other problems - Security

➤ Firewalls



➤ Secure Sockets





Using Java

- ◆ For PL/SQL programmers wanting to move to Java, there are some important conceptual differences to understand.
- ◆ Learning Java is more than just learning a new syntax.
- ◆ You need to take an object-oriented approach.



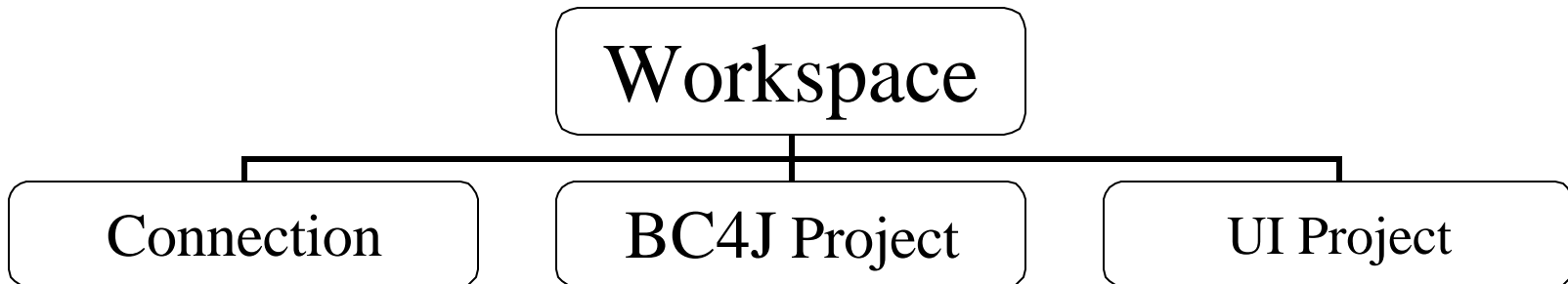
JDeveloper – What is it?

- ◆ Primarily a Java development environment
- ◆ Limited JSP support
- ◆ Main differentiation point – Business Components for Java (BC4J)



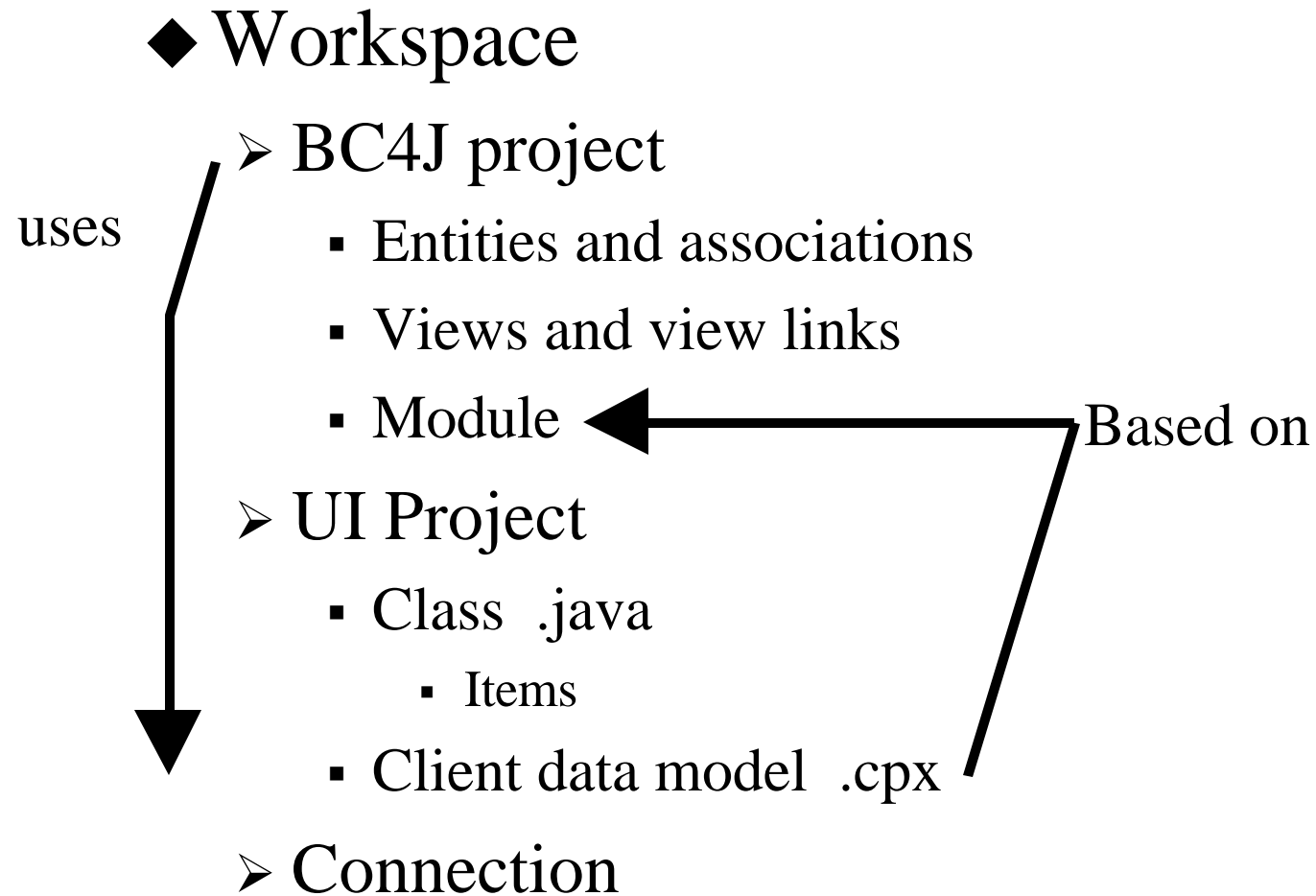


JDeveloper – Java Application





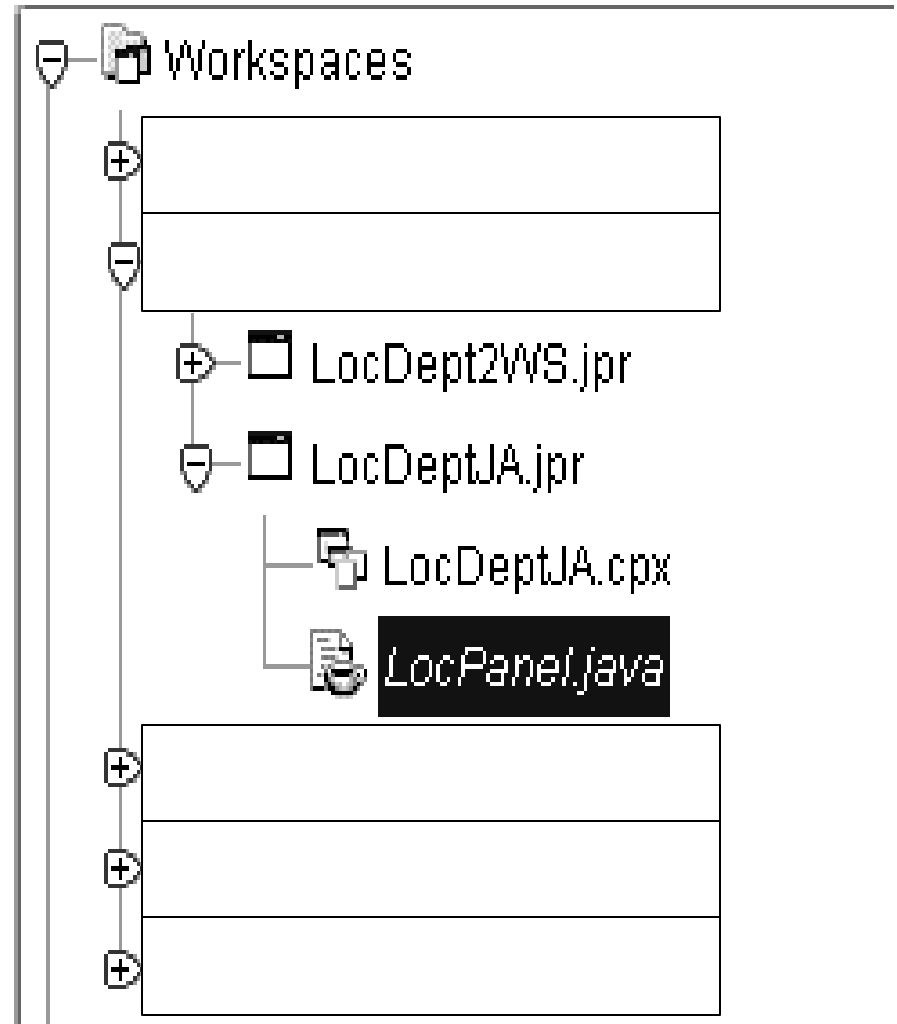
JDeveloper Application Architecture





Workspaces

- ◆ Can have many open at once (in 9i not 3.2)
- ◆ Logical grouping of ... files
- ◆ Physically a file with names and locations of other files .jws
- ◆ 1 workspace per application (or logical portion of)





Projects

- ◆ Logical grouping of ... stuff
- ◆ Physically - a file with pointers (.jpr)
- ◆ Lives in one package (directory)
- ◆ Usually at least 2 in an application:
 - BC4J
 - UI or JSP



Packages

- ◆ Same as directory
- ◆ Everything has to go into a package:
 - Workspace
 - Project
 - Class
- ◆ If you don't put everything in the same package, refer to objects in other packages as `package_name.object_name`



BC4J - Overview

- ◆ Main advantage over other development tools
- ◆ Primary way of handling database DML operations
- ◆ Overcomes hurdle of complex database interface to handle web-based applications
- ◆ BC4J features:
 - Builds a set of Java classes that wrap the DML commands and reference an XML document that stores the data structure
 - Classes make JDBC calls to the database to take over insert, update, delete and lock functions.



BC4J - Advantages

- ◆ BC4J classes can implement complex validation
 - Need to think carefully about whether this is the appropriate place for this function
- ◆ Reduced development time
- ◆ Can cache data to be shared among multiple users
 - Allows for tuning capabilities





BC4J Files

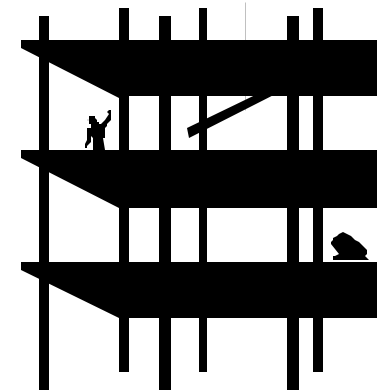
- ◆ XML – redundantly stores data structure of relational database
- ◆ Java classes – contain complex logic and application calls used by other parts of application
- ◆ Java library – provided by Oracle to handle JDBC generation





BC4J Structure

- ◆ Developers only need to think in terms of logical objects
- ◆ Manipulate Java classes only where complex validation or coding not handled by the wizards is required
- ◆ Conceptually divide application into 2 parts:
 - User interface and client logic
 - Database interface and business logic





How BC4J Works

- ◆ Wizards generate XML files that define data structure
 - All file manipulation should be handled using the wizards
- ◆ Wizards generate Java classes to control what happens to the data
- ◆ Portable interface to database
 - Can add validation and business rules





BC4J Capabilities

- ◆ Several options for placement of complex validation
 - Database tier (may impact performance)
 - Middle tier (application or web server)
 - Locally in the client (faster performance, easier debugging and maintenance if code not duplicated elsewhere)
- ◆ Factors to help determine placement
 - Hardware configuration
 - Deployment strategy
 - Number of and types of clients
 - Ease of debugging and maintenance



What's New in JDeveloper 9i?

Thanks to Peter Koletzke for some of this



What's new?



Now 100% Java

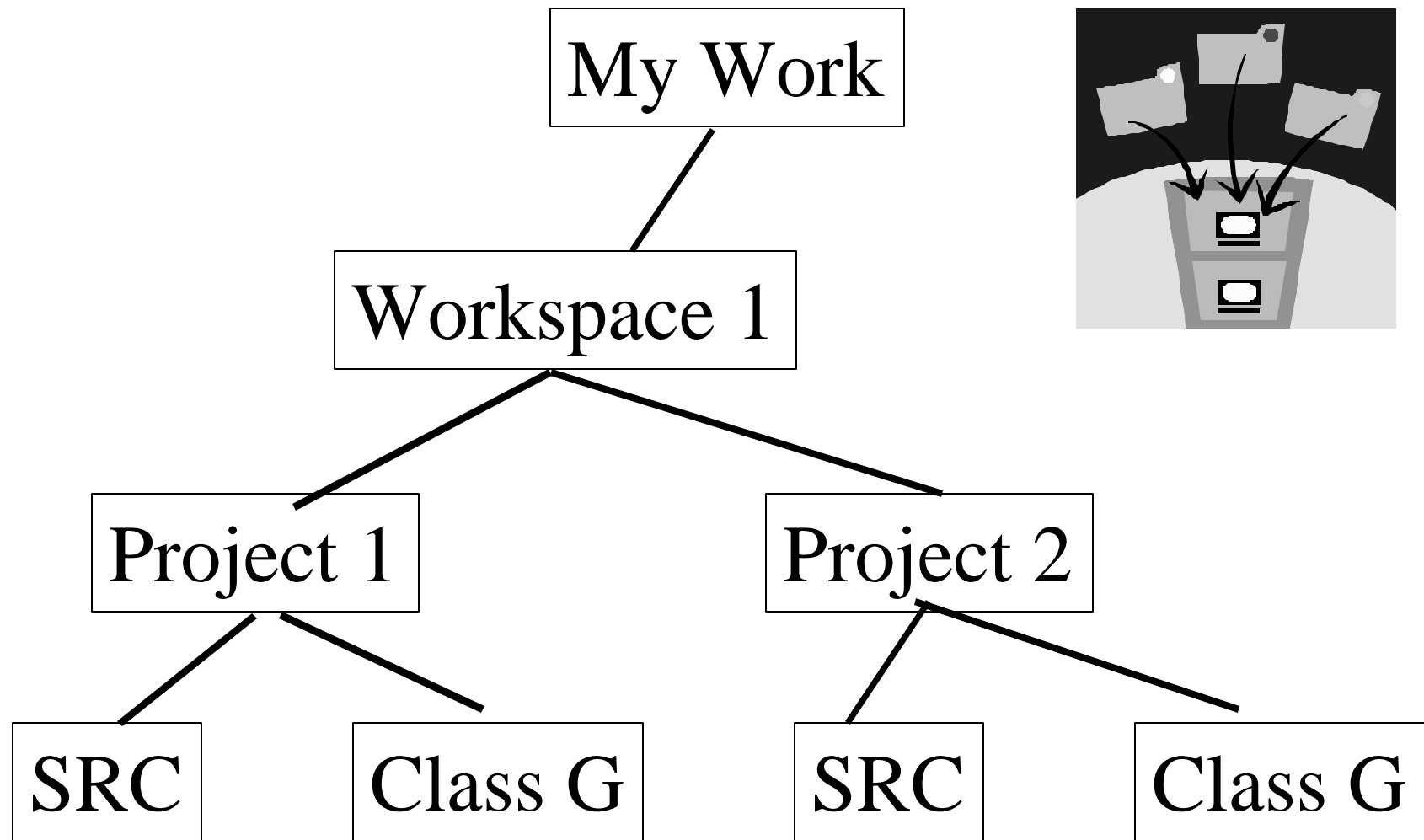
- ◆ Slightly slower IDE
- ◆ Some compilation is faster.
- ◆ All in all – a little slower



What's new?



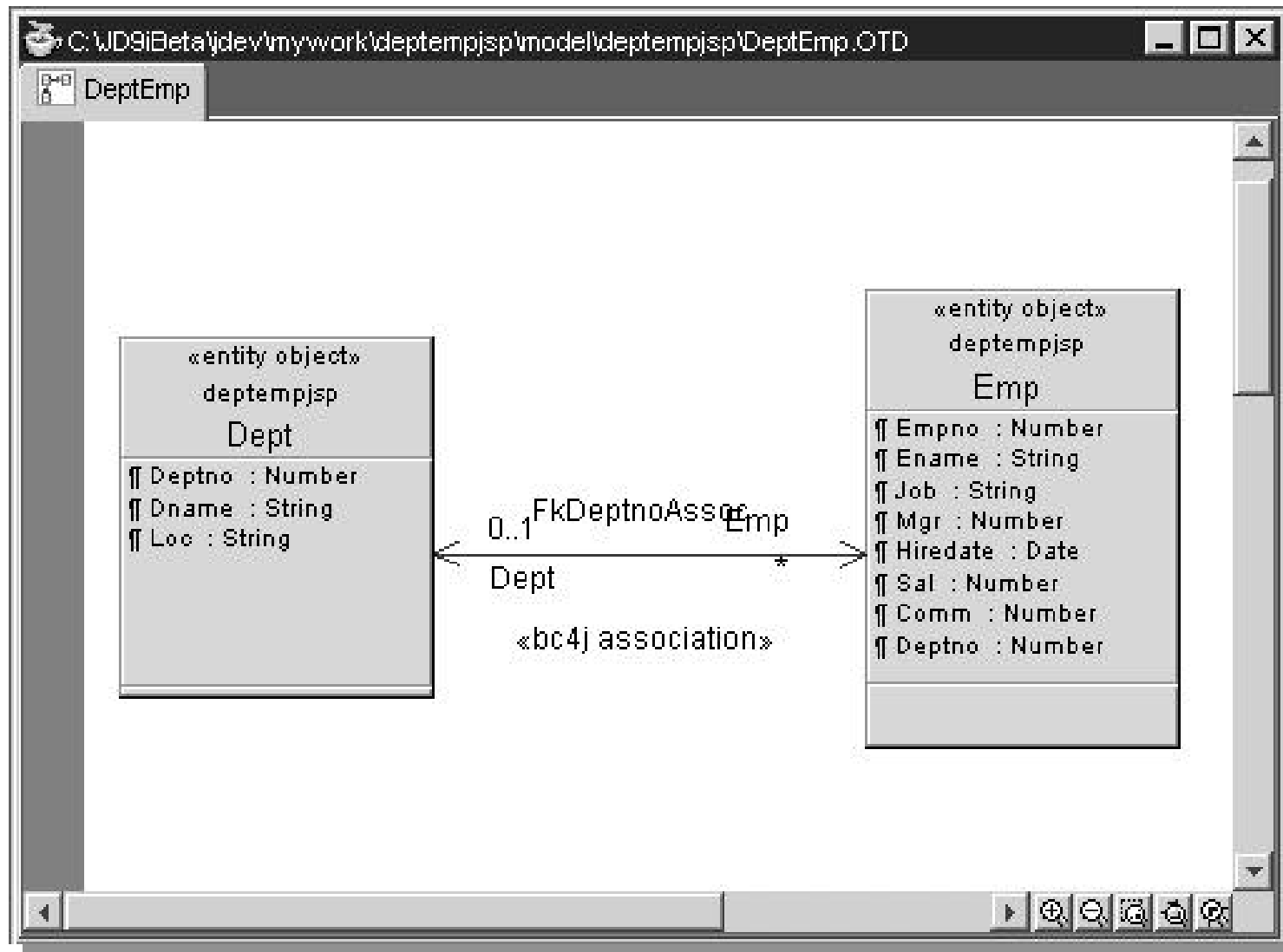
New File Structure



Useful tips



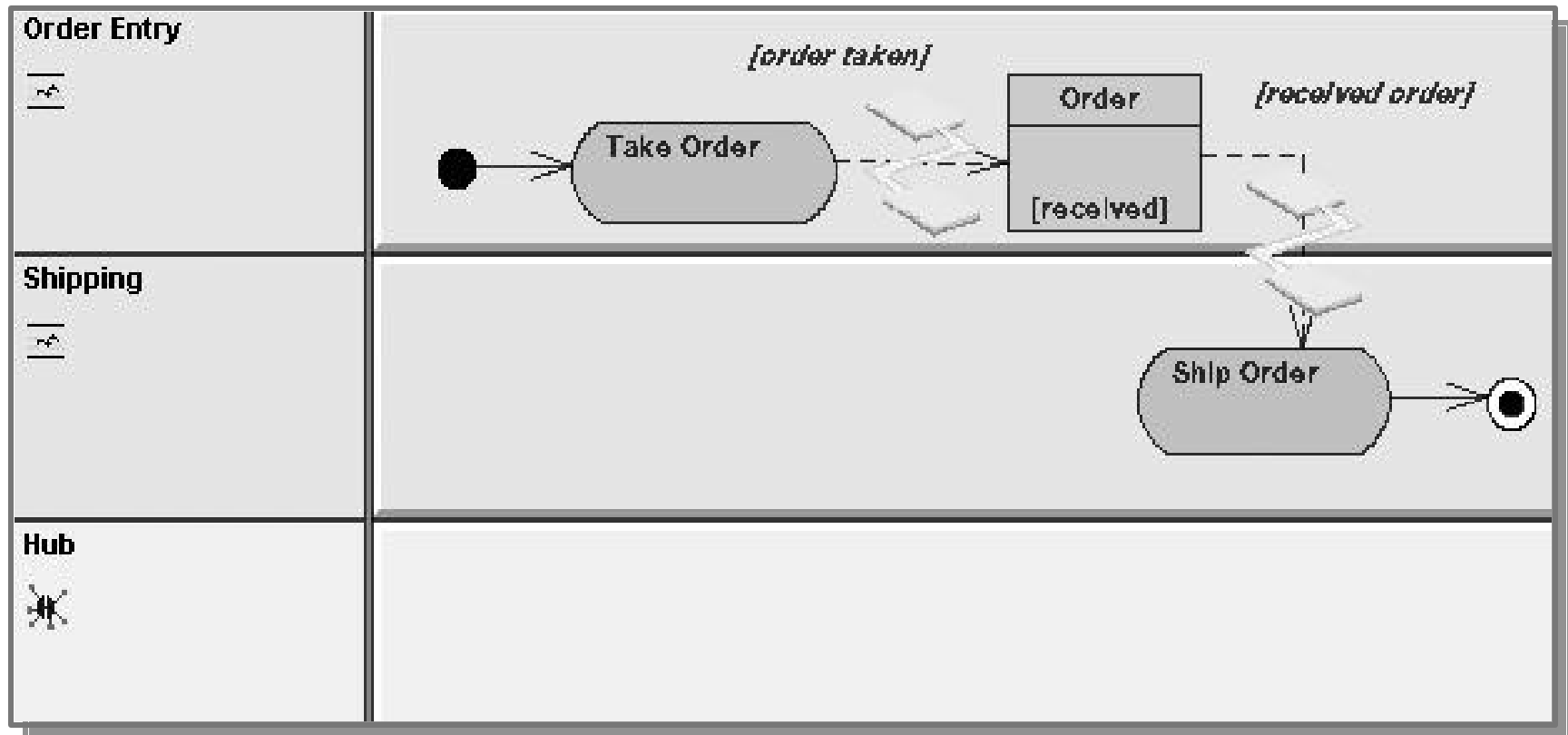
JDeveloper Class Diagram



What's new?



JDeveloper Activity Modeler



- ◆ Swim lanes and activities
- ◆ Vaguely familiar if you know Designer

What's new?



Software Configuration Management

- ◆ Linked to the Oracle SCM Repository
 - Formerly known as “Designer Repository”
 - Same engine as Designer 6i
- ◆ Use for version control and configuration management
 - Check-in and Check-Out
 - Compare
 - Merge
 - In the menu and navigator

What's new?





New BC4J Features

- ◆ Synchronization with the database
- ◆ Bi-directional view links and many-to-many view links
- ◆ Create a view object based on a programmatic source
- ◆ Support for `VARRAY` and nested tables
- ◆ Design time support for mapping an attribute to a database sequence



What's new?



Java Applications and Applets

- ◆ Called Java Client or JClient
- ◆ No DAC
 - Beta does not include support for Data Aware Controls
 - Backwards compatibility-only for DAC in production
- ◆ MVC instead
 - Bind Swing controls to BC4J
 - No DAC needed



What's new?



JSP Enhancements

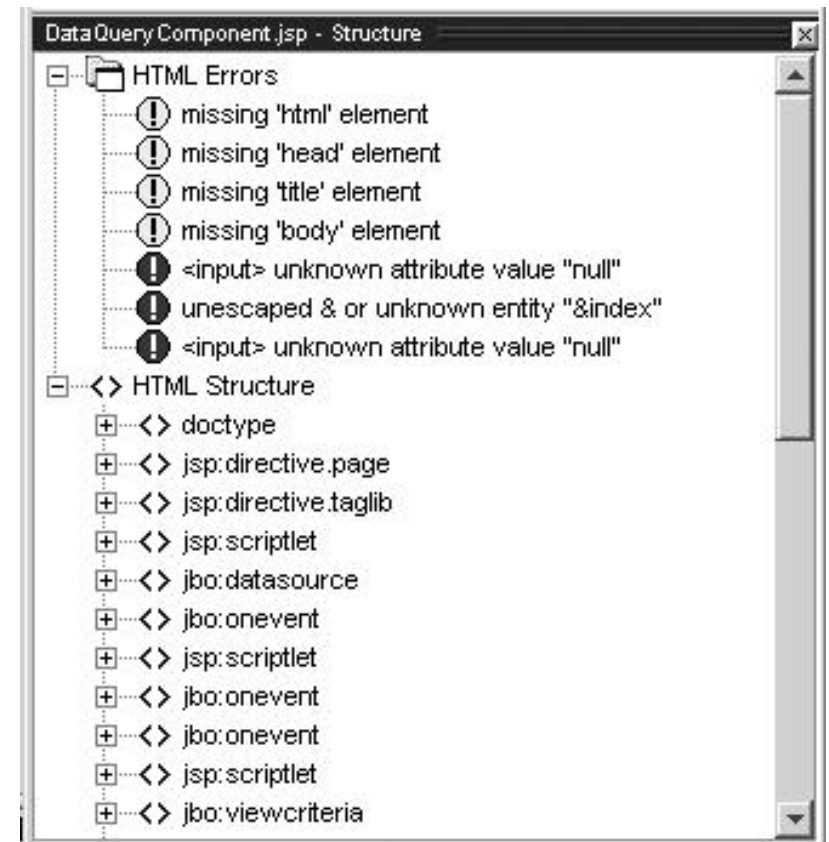
◆ Code Insight for JSP files

- Auto fill-in of names and arguments
- Color coding in the editor

◆ Hierarchical view of JSP and HTML

- Appears in the Structure Pane
- Lists errors as well

◆ Expanded tag library



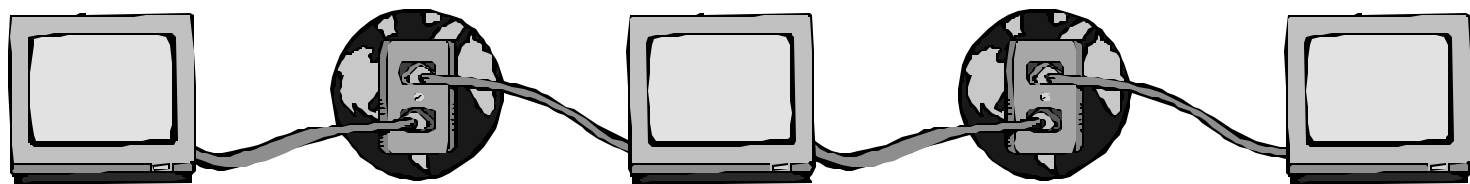
What's new?



Connections

- ◆ Database – same as in version 3.2
- ◆ AppServer – 9i App Server
- ◆ Repository – for Configuration Management

Haven't tried them yet

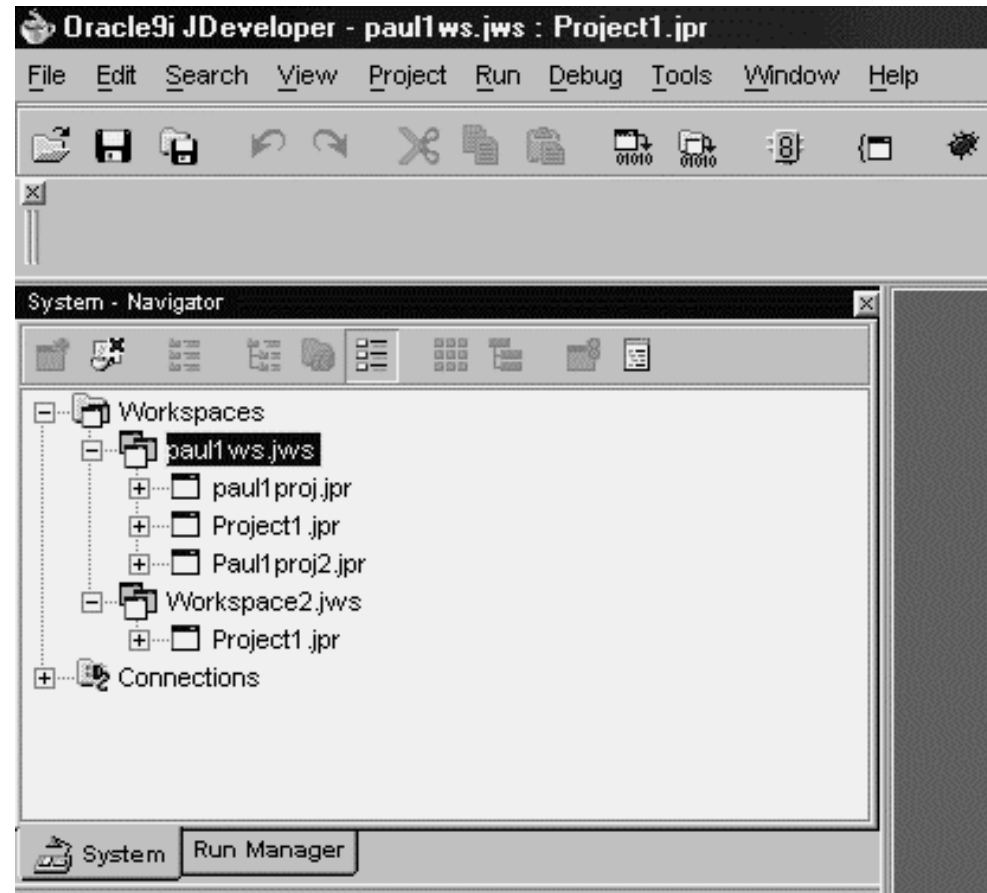


What's new?



Workspaces (applications)

- ◆ Many can be open at once.
- ◆ Close = Remove from IDE
- ◆ Open = Find the file
- ◆ Seems silly
 - It's a beta.



What's new?



Nicer BC4J Tester

The screenshot shows the Oracle Business Component Browser (Local) window. The left pane displays a tree view of components under Bc4jPKGModule, including DeptView, FkDeptnoLink, EmpView1, and EmpView. The right pane shows the configuration for Bc4jPKGModule.FkDeptnoLink, with input fields for Deptno (10), Dname (ACCOUNTING), and Loc (NEW YORK). Below the input fields is a table with columns: Empno, Ename, Job, Mgr, Hiredate, Sal, Comm, and Deptno. The table contains three rows of data.

Empno	Ename	Job	Mgr	Hiredate	Sal	Comm	Deptno
7782	CLARK	MANAG...	7839	1981-0...	2450		10
7839	KING	PRESI...		1981-1...	5000		10
7934	MILLER	CLERK	7782	1982-0...	1300		10

Name: Bc4jPKGModule.FkDeptnoLinkDefinition: bc4jPKG.FkDeptnoLink

What's new?



Learning JDeveloper

- ◆ Much of the user interface has changed.
- ◆ It is easy for me to see the changes, but...
- ◆ I would recommend starting with 3.2, doing the tutorials from the book and then upgrade:
 - JDeveloper 3 Handbook (Dorsey & Koletzke) Oracle Press, 2001

or

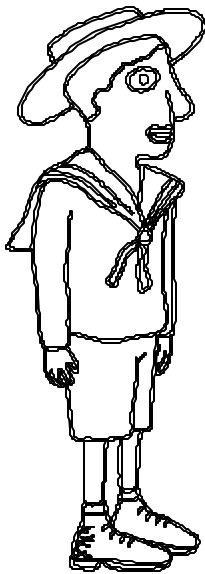
- ◆ Wait for us to finish the revised edition.

What's new?



7 things I wish I had known when I started

- ◆ 1. The BC4J Wizard works great with Scott/Tiger.
 - Build each component separately



Scott



Tiger

Useful tips



More things...

◆ 2. Sequence-generated primary key

The screenshot shows the Oracle9i JDeveloper IDE interface. The main editor window displays the following Java code for `DeptImpl.java`:

```
86  * Add attribute defaulting logic here.
87  */
88  public void create(AttributeList attributeList)
89  {
90      super.create(attributeList);
91      SequenceImpl deptseqx = new SequenceImpl("dept_seq", getDBTransaction());
92      Long nextseq = (Long) deptseqx.getData();
93      this.setDeptno(new Number(nextseq.intValue()));
94  }
95  /**
96   * Add entity remove logic here.
97   */
98  public void remove()
99  {
100     super.remove();
101 }
102 /**
```

The System Navigator on the left shows the project structure:

- bc4jPKG
 - bc4jPKG.xml
 - Dept
 - DeptImpl.java
 - Dept.xml
 - Emp
 - DeptEmpDeptnoASSOC
 - DeptView
 - DeptViewImpl.java
 - DeptView.xml

The Structure view at the bottom left shows the class hierarchy for `DeptImpl`:

- bc4jPKG
 - Import(s)
 - DeptImpl
 - extends EntityImpl
 - DeptImpl()
 - create(AttributeList)
 - createPrimaryKey(Number)
 - doDML(int, TransactionEvent)

The status bar at the bottom indicates "Line 94 Column 4", "Insert" mode, and "Windows: CRLF". The console at the very bottom shows the message: "Starting bc4jPKG.DpetEmpMODULE."



More things....

◆ 3. How to talk to the database (Usually no need for SQLJ)

➤ Acts like execute immediate

➤ Outside of BC4J

```
SessionInfo1.getDBAccess().getTransaction().  
executeCommand("begin place code here;  
end;");
```

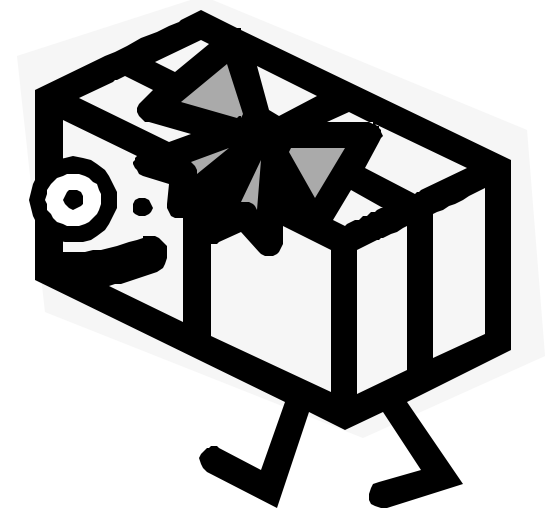
➤ Inside BC4J

```
getTransaction().executeCommand("begin  
place code here; end;");
```



More things...

- ◆ 4) Deployment
 - Deploy subprojects first
 - Point main application to subprojects
- ◆ 5) Code obfuscation fails if you have wrappers around PL/SQL packages.





More things...

- ◆ 6) Don't rename objects after they are created in BC4J
 - Entities
 - Views
 - Associations
 -
 - Code doesn't clean up correctly
- ◆ 7) Use JDK 1.3.1 or more recent version .
 - Earlier versions have bad memory leaks.



More Information on JDev 9i

◆ otn.oracle.com

- Still in beta
- Products area
- The discussion forums are quite active.
- This is the only resource so far.



Useful tips



So, is JDev ready for prime time?

- ◆ For Java applications
 - Probably - but it will take some effort
- ◆ For JSPs
 - Possibly - but you are going to need to be very smart
 - ...or very patient
- ◆ As a replacement for Designer (the grand vision)
 - No way



Contact Information

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- ◆ Dulcian website - www.dulcian.com



Coming in Spring 2002 –
Oracle 9i JDeveloper Handbook

