



Object-Oriented Design

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Lecture 23

Implementation Workflow



Implementation Workflow

- Implementation is primarily about creating code. However, the OO analyst/designer may be called on to create an implementation model. This workflow is the main focus of the Construction phase.
- The *Implementation Workflow* consists of the following activities:
 - Architectural Implementation
 - Integrate System
 - Implement a Component
 - Implement a Class
 - Perform Unit Test



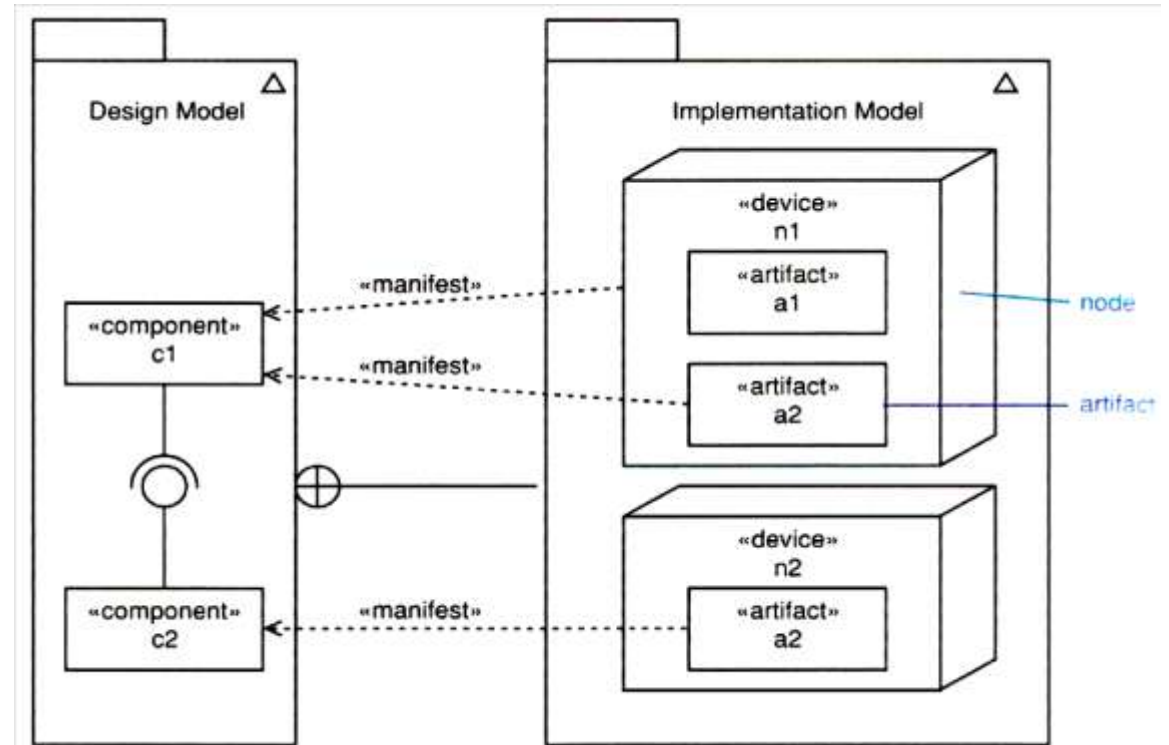
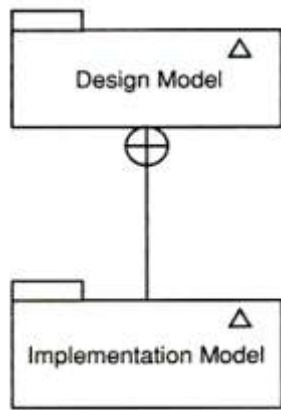
Implementation Workflow: Deployment Diagrams

- Artifacts - represent the specifications of real-world things such as source files:
 - components are manifest by artifacts;
 - artifacts are deployed onto nodes.

- Nodes - represent the specifications of hardware or execution environments.
 - «device» - a type of physical device such as a PC or a Sun Fire server.
 - «execution environment» - a type of execution environment for software, such as an Apache web server.



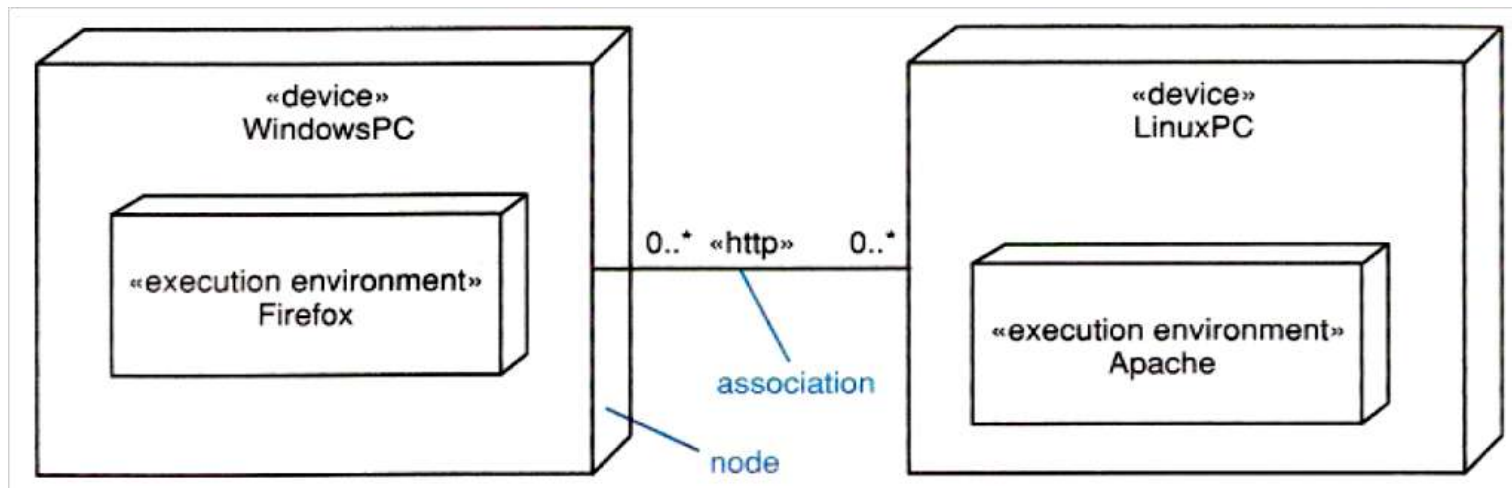
Implementation Model





Deployment Diagram: *Descriptor Form*

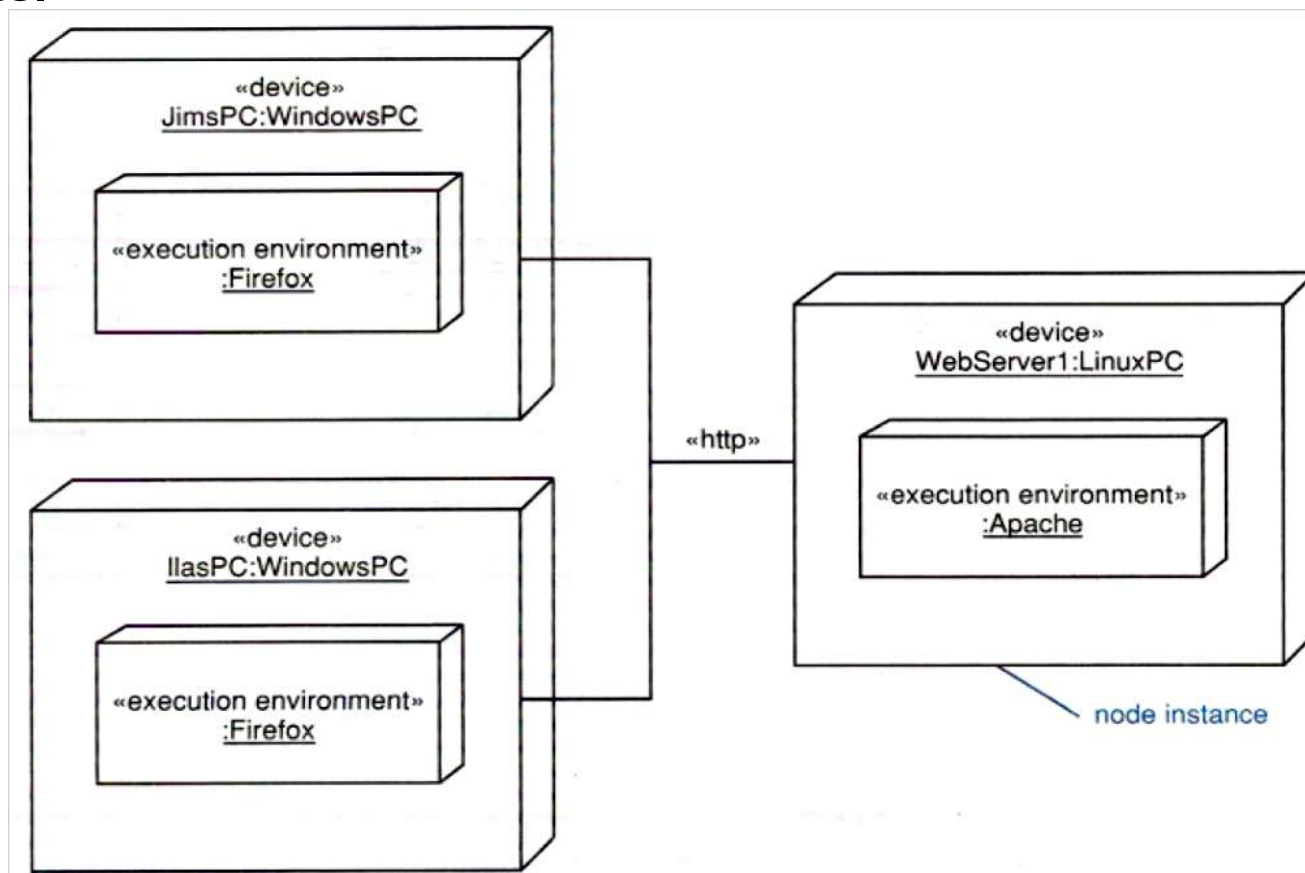
- The descriptor form deployment diagram may be used to model what types of hardware, software, and connections there will be in the final deployed system.
- It describes a whole set of possible deployments.





Deployment Diagram: *Instance Form*

- The instance form deployment diagram shows a particular deployment of the system over specific, identifiable pieces of hardware.
- It describes one specific deployment of the system, perhaps at a specific user site.



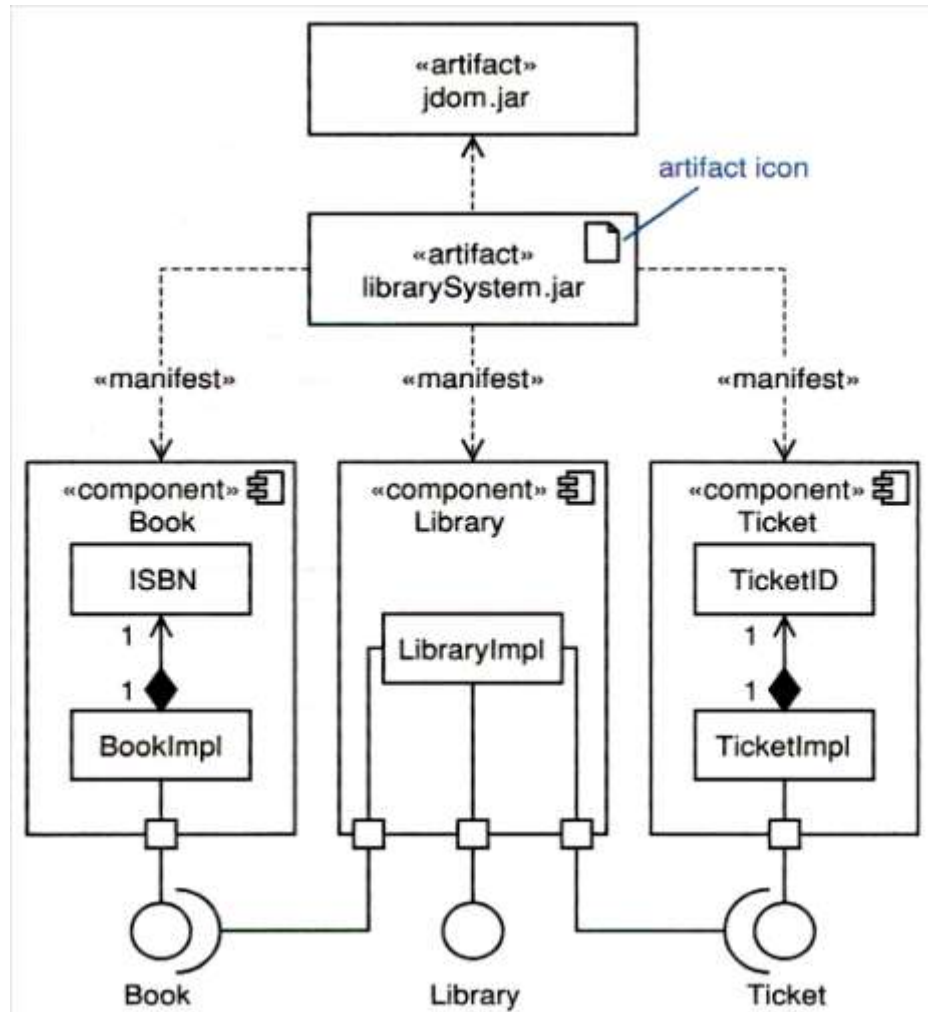


Deployment Diagram: *Artifacts*

- Artifact - represents the specification of a real-world thing such as a particular executable file, source file, document or database table.
- Artifacts can manifest one or more components.
- Artifact instance - represents a specific instance of a particular artifact, such as a specific copy of a particular executable file deployed on a particular machine.



Artifacts: *Example*



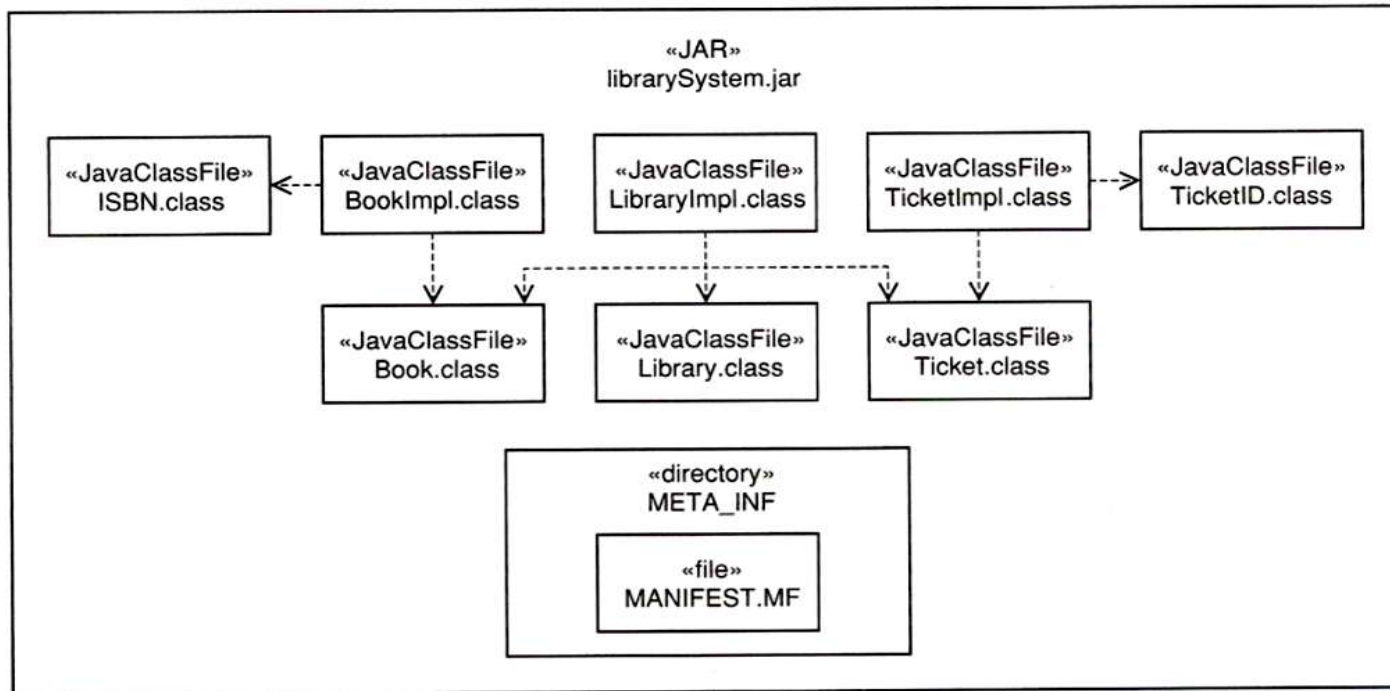


Artifacts: *Standard Stereotypes*

Artifact stereotype	Semantics
«file»	A physical file
«deployment spec»	A specification of deployment details (e.g., web.xml in J2EE)
«document»	A generic file that holds some information
«executable»	An executable program file
«library»	A static or dynamic library such as a dynamic link library (DLL) or Java Archive (JAR) file
«script»	A script that can be executed by an interpreter
«source»	A source file that can be compiled into an executable file

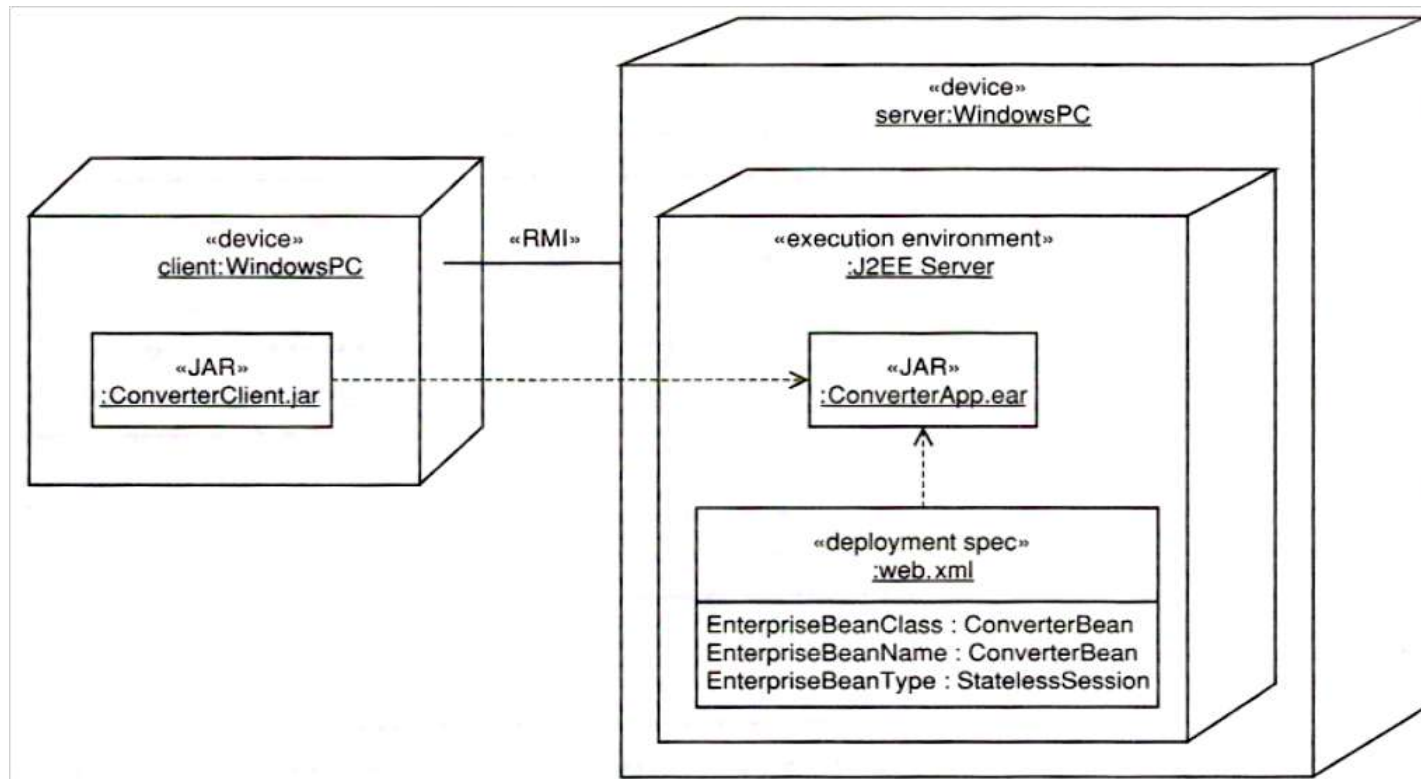


Artifacts: *Profile Stereotypes* – Example





Deployment Diagram: *Complete Example*





Reference

- Arlow, J., Neustadt, I., *UML 2 and the Unified Process: Practical Object-Oriented Analysis and Design*, 2nd Ed. Addison-Wesley, 2005.