Rational Rose

Jump Start Tutorial
Overview
Designing Complex Systems

- Three big steps in designing complex systems
  - Abstract the system by building models
  - Verify the model to satisfy requirements
  - Transform models into implementation
What Rational Rose does?

- Build visual models to analyze and design components
- The models acts as a blueprint of the software system
- Uses the **UML** Standard
Features
Types of Diagrams

☐ Use Case Diagram
☐ Class Diagram
☐ Data Model Diagram
☐ State Machine Diagram
☐ Interaction Diagram
☐ Component Diagram
☐ Deployment Diagram
Use Case Diagram

- A high-level view of how a system is used
- Specify the behavior of a system as implemented
Use Case Diagram

- Use Case
- A sequence of events performed by the system
- Actor
- A system user who interact with the system
Creating a Use Case Diagram
Expand Use Case View
Right-click **Use Case View**
Choose **New -> Actor**
Type in **LibraryUser**
Right-click Use Case View
Choose New -> Use Case
Name it
Check Book Availability
Do the same to add a **Librarian Actor**, **Use Cases**
- Checkout Book
- Renew Book
- Reserve Book
- Re-shelf Book
- Return Book
Right-click the **Main Use Case Diagram**, Click Rename, and type in **Library Transactions**
Double-click **Library Transaction** to bring up the *Use Case Diagram*.
Maximize the *Use Case Diagram*
Drag **LibraryUser** and **Librarian** to the **Use Case Diagram**
Likewise, drag all the *Use Cases* to the diagram one by one.
Click the *Unidirectional Association* arrow (solid line arrow)
Click and hold the mouse click on **LibraryUser**, drag it over to **Return Book**, then release the mouse.
Return Book Use Case is then associated to Library User.

Do the same to create Association arrows as shown in the diagram.
Click the **Dependency** arrow (dotted line arrow)
Drag from Reserve Book to Check Book Availability
Right click the Dependency arrow
Choose Open Specification
Open the drop down box
Choose *Include*
Then click OK
Drag <<include>> above the arrow
Class Diagram

- Contain icons representing classes, interfaces and their relationship
Class Diagram

- Class name
- Attributes
- Operations
Creating a Class Diagram
Name it **LibraryClasses**
Double-click **LibraryClasses** and maximize the diagram.
Right click **Use Case View**
Choose New -> Class
Name it Book
Do the same and create these classes: 
Patron 
Student 
Faculty
Drag them into the class diagram
Right-click Book, Select New Attribute
Add the remaining attribute:
Author
ISBN
Publisher
Status
Right-click Book, Select New Operation
Name it `isAvailable`
Enter the rest of the attributes and operations as shown in the diagram.
Click the Generalization arrow.
Drag it from **Student** to **Patron**
Do the same for Faculty
Drag the arrow head of the **Faculty** class arrow of the **Student** class
We have built an inheritance tree.