Object Oriented Analysis and Design Using UML 2.1, Java, Rational Rose, Rational Method Composer v7.x, and Rational Software Architect v6.x/v7.x

Course Code: UML201

Duration: 3 days

Objective

In this intensive workshop, you will gain practical and complete object oriented software life cycle experience by extensive hands-on exercises.

1. Apply the latest industry standard UML 2.1 modeling language for OO analysis and design.
2. Take full features of the best OO language – Java.
3. Master industrial most popular and latest OO/UML CASE tools – Rational Software Architect 6.x/7.x (RSA), IBM Rational Application Developer 6.x/7.x (IRAD), and Rational Rose.
4. Customize OO Process using Rational Method Composer v7.x (RMC).
5. Introduce some design patterns.
6. Show how OO designs are mapped to Java.
7. Introduce OO Testing.
8. Live demonstrate on JUnit, ANT, Java, UML using RMC, Rose, RSA or IRAD.

Topics

1. What is in UML 2.0 and OO life cycle?
2. What is Rational Method Composer?
3. Steps to create your custom process using RMC
4. What are Use Cases and Use Case Diagram?
    - Mapping Business Requirements to Use Cases
    - Use Case and Actor
    - Scheduling Use Cases
    - System Use Cases
    - Scenarios
    - Use Case diagram
    - What are the difference among include, extend, uses, extends, generalization Relationships.
    - How use cases are related to other UML artifacts.
5. Object Oriented Analysis in UML

- What are the differences between UML 2.0 and UML 1.5?
- Class Diagram; Associations, Attributes
- System Sequence Diagrams & System Operation Contracts
- Generalization, when to and not to create a subtype, multiple inheritance
- Abstract type, Package diagram, Associative type, Aggregation
- State Machine Diagram with Actions and Guards; Nested States
- Use Case State Machine Diagram, System Use Case State Machine Diagram
- Activity Diagram, Swimlanes in Activity Diagram, Concurrent/Parallel Processing
- Component Diagram
- Deployment Diagram

6. Object Oriented Design and Design Patterns in UML and Java
    - System Use Cases, Communication diagram, Sequence Diagram
    - Assigning Responsibilities, Visibility, Design Class Diagram
    - Who Should Instantiate Objects
    - Who Should Clean up Objects
    - How to Provide Global Access Point
    - How to Ensure Single Instance Is Created
    - How to Model Service Request
    - How to Make Multiple Views Consistent With A Single Data Model
7. Object Oriented Implementation and Deployment
    - Mapping Design Class Diagrams to Java
    - Mapping Sequence/Communication Diagrams to Java
    - ANT using IRAD and RSA
8. Object Oriented Testing
    - Strategies of OO Testing
    - JUnit in RSA and IRAD
    - Case Tools Supporting OO Testing
9. Full Features of Rational Rose and Rational Software Architect in UML
    - Use case diagram
    - Class diagram
    - Sequence diagram
    - Communication diagram
    - State machine diagram
    - Package diagram
    - Component diagram
    - Deployment diagram
    - Web Publishing of UML diagrams

Prerequisite

No programming background and IBM Rational UML/OO case tool experience are assumed. Procedural Programming and/or basic Java knowledge can be beneficial. For those who want to comprehend the Java code examples, basic Java knowledge is useful; otherwise most of the course is computer language neutral.