

Eclipse Modeling COURSE OUTLINE



Description

The modeling class consists of 3 components: Eclipse Modeling Framework (EMF), Graphical Editor Framework (GEF) and Graphical Modeling Framework (GMF).

EMF is a modeling framework and code generation facility for building tools and other applications based on a structured data model. From a model specification described in XMI, EMF provides tools and runtime support to produce a set of Java classes for the model, a set of adapter classes that enable viewing and command-based editing of the model and a basic editor. Models can be specified using annotated Java, XML documents or modeling tools like Rational Rose, then imported into EMF. Most important of all, EMF provides the foundation for interoperability with other EMF-based tools and applications. The course will cover advanced concepts in developing Eclipse plug-ins using EMF.

GEF provides a foundation for building rich, interactive user interfaces, which are not easily built using native widgets found in the base Eclipse platform. GEF is based on MVC architecture. Every GEF-based application uses a model to represent the state of the diagrams being created and edited. The course will cover advanced concepts in developing Eclipse plug-ins using GEF.

GMF provides a generative component and runtime infrastructure for developing graphical editors based on EMF and GEF. The course will give an overview about its concepts and interaction. You will practice GMF-use and learn about GMF prospects in real world projects.

Audience

Java developers, project managers, tool developers, tool vendors and plugin developers

Prerequisites

Advanced Java programming and acquaintance with modeling techniques (any platform)

Duration and Format

Five-day, advanced level course that is instructor-led with at least 50% hands-on labs

1. Introduction to Modeling <ul style="list-style-type: none">• What is modeling?• Model driven approach• Graphical Modeling Framework (GMF) overview
2. Ecore Model
3. Runtime <ul style="list-style-type: none">• Resource and ResourceSet• Notifications and adapters• Reflective API
4. Edit <ul style="list-style-type: none">• EditingDomain• ItemProviders• Commands
5. Code Generation: GenModel

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6. Draw 2D <ul style="list-style-type: none">• Architecture overview• Figures• Layouts• Connections
7. Model View Controller (MVC) in GEF
8. Controller: EditPart <ul style="list-style-type: none">• Creation: EditPartFactory• Hierarchy
9. View Update: Refresh Methods
10. Model Modification: Request, Command and EditPolicies
11. User Interactions
12. Palette and Tools
13. Editor Structure <ul style="list-style-type: none">• EditDomain• GraphicalViewer• Actions
14. Architecture
15. Runtime <ul style="list-style-type: none">• Notational model• Services model• Commands• Element type
16. Code Generation <ul style="list-style-type: none">• Code structure• Code customization: code, templates and services

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17. Customization

- EditParts
- Notational
- Multi-diagram
- Outline
- Properties view

18. Introduction to GMF

- EMF + GEF = GMF
- GMF generation process
- GMF design environment

19. GMF Runtime and Tooling

- Generated editor
- XPand for code generation

20. GMF Mapping

- Mapping model
- Graphical effects

21. Customizing the GMF Generated Editor

- GMF gen model
- Customize generated code

22. Advanced Methods for Modifying the Generated Model