Eclipse Xtext

Basic course

Xtext is a Modeling framework for building Textual Domain-Specific Languages (DSL). It takes the language definition as input and generates infrastructure that can be fully customized, and has integration with popular IDE's like Eclipse and Intellij idea.

The framework can also be used to create fully-functional programming languages. Xtend is a Java-like language and is a proof of concept of how involved a language implementation in Xtext can be.

Workshop

The workshop is an in-depth introduction to building Domain-Specific languages using the Eclipse Xtext framework. Participants will have an opportunity to build a DSL and use it for implementing Domain concepts.

Key concepts mentioned in the training schedule is covered in-depth with appropriate hands-in exercises. Participants will also have an opportunity to use the Xtend language which is built using the Xtext framework.

Prerequisite

Experience of programming in Java
Experience of using Eclipse IDE for Java development

Modalities

Duration: 8 hours
Structure: Instructor-led with 100% hands-on labs
Participants: Maximum 8 per workshop
Equipment: Participants supply their own computer with the latest Eclipse and DSL tooling installed.

Agenda

Introduction

- Domain-Specific Language (DSL), and Model-Driven Engineering (MDE) concepts
- Xtext framework introduction
- Example use cases.

Xtext infrastructure

- Creating the Xtext project
- Understanding the Project layout
- Runtime, UI and Test projects
- Grammar definition and .MWE2 files
- Code generation.

Grammar definition

- Common Terminal grammar
- Defining Grammar for our DSL
- EPackage declaration, Parser and DataType rules, Overriding grammar rules, Enum definition...etc
- Grammar reuse and Mixins.

Runtime concepts

- Validator for our DSL
- Scope provider
- Formatter.

IDE concepts

- Proposal providers
- Quick-fix provider
- Syntax highlighting.