

## Introduction to Google Web Toolkit Training

### Course Summary

#### Description

Google Web Toolkit (GWT) allows Java developers to create Web 2.0-ready AJAX front ends. GWT compiles these Java artifacts into optimized JavaScript for all major browsers. This GWT training course provides a foundation in developing front-end modules with GWT widgets, panels, events and other mechanisms.

#### Objectives

After taking this course, students will be able to:

- Understand the challenges of Ajax programming and how GWT addresses them.
- Learn about GWT infrastructure, projects and code artifacts.
- Learn to use GWT widgets, panels, images, events, listeners to build Ajax forms.
- Learn to use GWT Utility and framework classes.
- Learn to incorporate history and bookmarks in your front-ends.
- Learn about GWT's RPC protocol and how to use it.

#### Topics

- The GWT Concept
- GWT User Interfaces
- Organizing User Interfaces in GWT
- Event Handling in GWT
- Images and Resources
- GWT Utility Classes
- History and Bookmarks in GWT
- RPC Protocol in GWT
- GWT UiBinder and SafeHtml
- More on GWT User Interfaces

#### Audience

This course is designed for Java developers.

#### Prerequisites

Before taking this course, students are required to have a fair knowledge of Java programming language. Students are also required to have a basic understanding HTML, CSS, Javascript, and their relationships. Some foundation in widget-based Form development using events would be useful before taking this course. Students would also find it beneficial to have basic knowledge of HTTP protocol.

#### Duration

Three days

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### Course Outline

- I. The GWT Concept**
  - A. Dynamic HTML
  - B. The GWT Solution
  - C. So What is GWT?
  - D. The GWT Compiler
  - E. GWT Design Axioms
  - F. Getting Started with GWT
  - G. Creating a GWT Project
  - H. A GWT Project Structure
  - I. Executing a GWT Project
  - J. Using GWT with Legacy Web Apps
  - K. GWT Module Configuration
  - L. GWT Module Entry Point
  - M. Development Mode versus Web Mode
  - N. Our Class Project: A Film Rental Application
- II. GWT User Interfaces**
  - A. GWT User Interfaces
  - B. Creating and Configuring Widgets
  - C. Widget Hierarchy
  - D. Widget Behavior
  - E. Using the RootPanel
  - F. Basic Styling
  - G. Some Basic Widgets
- III. Organizing User Interfaces in GWT**
  - A. Laying Out Widgets into Panels
  - B. Various GWT Layouts
  - C. FlowPanel
  - D. HorizontalPanel and Vertical Panel
  - E. The RootPanel
  - F. DockPanel, DockLayoutPanel, SplitLayoutPanel, andLayoutPanel
  - G. Using Grid
  - H. Using FlexTable
  - I. Using ScrollPanel
  - J. Popups and Dialogs
  - K. Other Utility Panels
- IV. Event Handling in GWT**
  - A. Event Handling in User Interfaces
  - B. The GWT Event Model
  - C. Using Event Handlers
  - D. Types of Events
  - E. FormPanel Events
- V. Images and Resources**
  - A. Using Images in GWT
  - B. The GWT Image Widget
  - C. Prefetching Images
  - D. Using ImageBundle and ClientBundle
  - E. Creating a Client Bundle for Images and Text
  - F. Using a Client Bundle
  - G. More on Client Bundles
- VI. GWT Utility Classes**
  - A. GWT and Cookies
  - B. The GWT Random Class
  - C. Animation in GWT
  - D. Uploading Files in GWT
  - E. The GWT Class
  - F. The GWT Window Class
  - G. The Window.Location Class
  - H. The GWT Timer Class
- VII. History and Bookmarks in GWT**
  - A. History and Bookmarks in GWT
  - B. Using Hyperlink Widgets
  - C. Managing History
  - D. The History Token
  - E. Adding New History Items
  - F. The History Handler
  - G. Handling Bookmarks
- VIII. RPC Protocol in GWT**
  - A. Why a New Protocol?
  - B. RPC Protocol in GWT
  - C. GWT RPC Basics
  - D. Steps to RPC: Code Components
  - E. RPC Components
  - F. Setting the Servlet Path in a Module
  - G. Creating an Invocation Target
  - H. RPC Events
  - I. No Synchronous RPC in GWT
  - J. Data Serialization
- IX. GWT UiBinder and SafeHtml**
  - A. What Is UiBinder?
  - B. UiBinder Benefits
  - C. UiBinder Templates
  - D. Creating a UiBinder in Eclipse
  - E. What Is SafeHtml?
- X. More on GWT User Interfaces**
  - A. Using Menus via a MenuBar
  - B. Using a Tree Widget
  - C. Using SuggestBox