

Beginning Google Web Toolkit

From Novice to Professional



Bram Smeets, Uri Boness, and
Roald Bankras

Beginning Google Web Toolkit: From Novice to Professional

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*To all my friends and family, especially my wonderful wife, Petra,
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—Bram Smeets

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—Uri Boness

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Contents at a Glance

About the Authors	xiii
About the Technical Reviewer	xv
Acknowledgments	xvii
Introduction	xix
■ CHAPTER 1 Introducing Rich Internet Applications (RIAs)	1
■ CHAPTER 2 Introducing Google Web Toolkit (GWT)	21
■ CHAPTER 3 Getting Started	45
■ CHAPTER 4 GWT UI Components	59
■ CHAPTER 5 Building an Advanced UI	89
■ CHAPTER 6 Server Integration	141
■ CHAPTER 7 Testing GWT Applications	157
■ CHAPTER 8 Advanced Topics	187
■ APPENDIX A IDE Support	223
■ APPENDIX B Resources	229
■ INDEX	231

Contents

About the Authors	xiii
About the Technical Reviewer	xv
Acknowledgments	xvii
Introduction	xix
CHAPTER 1 Introducing Rich Internet Applications (RIAs)	1
A Short History	1
Mainframe Applications	2
Client/Server Applications	3
Web Applications	3
Rich Web Applications	4
Introducing Ajax	5
Asynchronous	5
JavaScript	8
XML	9
From AJAX to Ajax	11
Advantages and Disadvantages of RIAs	12
RIA Benefits	13
RIA Shortcomings	13
When Should You Use Ajax?	14
Different Approaches to Building RIAs	14
Handwritten JavaScript	14
Flex	15
Java Applets and JavaFX	16
Silverlight	17
OpenLaszlo	17
Echo2	18
GWT	19
Summary	19

CHAPTER 2	Introducing Google Web Toolkit (GWT)	21
	Why GWT?	21
	From JavaScript to Java	21
	Considerations for Using GWT	22
	The Basics	23
	Java to JavaScript Compiler	23
	JRE Emulation Library	25
	UI Library	29
	GWT Application Layout	31
	Module Descriptor	32
	Public Resources	34
	Introducing the Sample Application	36
	Handy Development Tools	38
	Web Developer Add-on	38
	Firebug	40
	LiveHTTPHeaders	42
	Cacheability Engine	43
	Summary	43
 CHAPTER 3	 Getting Started	 45
	Installing GWT	45
	Project Structure	47
	Utility Scripts	48
	Application Creator Script	48
	Project Creator Script	50
	Writing Code	50
	Cleaning Up Generated Code	51
	Start Coding	51
	Running Code	52
	Styling Code with CSS	54
	Debugging	56
	Summary	57

CHAPTER 4	GWT UI Components	59
	GWT Component Model	60
	The RootPanel	61
	Basic Widgets	62
	The Label Widget	62
	The HTML Widget	63
	The Button Widget	64
	The ToggleButton Widget	65
	The Hyperlink Widget	67
	Form Widgets	68
	Panels	78
	Creating the Sample Application	79
	Designing the Main Look and Feel of GWTasks	79
	Showing the Categories and Task Lists	82
	Enhancing the User Experience with HorizontalSplitPanel	85
	Summary	87
 CHAPTER 5	 Building an Advanced UI	 89
	Using Tables	89
	Using Grid	89
	Using FlexTable	91
	Climbing Trees	94
	Using PopUpPanel and DialogBox	97
	PopUpPanel	97
	Using DialogBox	99
	Componentizing the Code Base	101
	Extending GWT Panels	101
	Using Composites	105
	Creating the TitledPanel Component	113
	LoginPane and MainPane—The Missing Components	122
	GWT Application Architecture	125
	Layers and Packages	126
	Application Events	129
	Managing the Data	133
	Some Last Words on Styles	139
	Summary	139

CHAPTER 6	Server Integration	141
	GWT RPC	141
	Defining the Interface	141
	Implementing the Server Side	144
	Implementing the Client Side	145
	Alternatives to GWT RPC	149
	Basic Ajax	149
	JSON	151
	Summary	156
 CHAPTER 7	 Testing GWT Applications	 157
	What Is Testing?	157
	Unit Testing	158
	Basic Unit Testing	158
	GWT JUnit Integration	161
	Comparing Basic and GWT Unit Testing	164
	Functional Testing	164
	Introducing Selenium	165
	Benchmarking	181
	What Is Benchmarking?	182
	Writing a Benchmark	182
	Summary	186
 CHAPTER 8	 Advanced Topics	 187
	Internationalization (i18n)	187
	A Few Words on Java Resource Bundles	188
	The Constants Interface	189
	The ConstantsWithLookups Interface	192
	The Messages Interface	194
	Formats	196
	Image Bundles	197
	Using Image Bundles Within GWTasks	199
	Tree Image Bundles	202
	Browser History and Back Button Support	203
	GWT History View	204
	The History Class	205
	Revisiting Hyperlinks	207
	Bookmark Support	208
	Integrating GWTasks with History Navigation	208

JavaScript Native Interface (JSNI)	211
Writing Native JavaScript Methods.....	211
Calling GWT Methods from JavaScript.....	213
Exception Handling.....	214
Uploading Files.....	215
Monitoring Progress on the Server.....	218
Monitoring Progress on the Client.....	219
Summary	220
APPENDIX A IDE Support	223
Eclipse.....	223
IntelliJ IDEA.....	226
APPENDIX B Resources	229
INDEX	231

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Bram, Uri, and Roald

Introduction

Over the last couple of years, we've noticed that our customers have gotten more demanding when it comes to the usability of their web applications. Inspired by the "web 2.0" trend and applications such as Gmail and the like, we've tried many approaches to building these rich Internet applications (RIAs). But all of these had one big flaw: they required us to learn a different language, including adhering to a whole new set of conventions and best practices. Only with the introduction of Google Web Toolkit (GWT) have we begun to feel confident about building this kind of application in a maintainable fashion.

This book introduces GWT within the context just described, and will guide you through the first steps of using it to build real-world applications. The goal is to get you as a Java developer up to speed quickly by providing just enough background and a lot of hands-on code samples. During the course of the book, we'll guide you through the different aspects of GWT that we feel are important, and leave out the ones we feel are out-of-scope for beginners. Most of the code samples will gradually build to make up a real-world sample application that allows you to manage your tasks using a web application.

After reading this book, you'll be equipped with the necessary knowledge and tools to start building real-world applications using GWT.

Who This Book Is For

This book is intended for Java developers who wish to reuse their Java expertise for writing complex rich Internet applications using the GWT framework. It can also serve those developers who have extensive knowledge of other web development technologies such as JavaScript and HTML, as GWT helps abstract away one of the biggest challenges in such development: browser compatibility and client-side performance.

How This Book Is Structured

This book is divided into eight chapters:

Chapter 1 introduces the basic concepts of contemporary rich Internet application development. It walks you through the history of web application development and provides a solid basic knowledge of the technologies that drive modern Web 2.0 applications in general and GWT positioning in particular.

Chapter 2 introduces you to GWT. This chapter details the basic concepts of GWT, the problems it was designed to solve, and its inner workings. You'll learn about the anatomy of a typical GWT application, and will also be introduced to the GWTasks sample application (a task management application) you'll be developing along with the book.

Chapter 3 gives you all the tools to get started with GWT. It teaches you how to create a simple GWT project from scratch, run it, and debug it. It's highly recommended that you not skip this chapter, as the following chapters rely on the knowledge it provides.

Chapter 4 shows how to develop GWT application in more detail. It introduces the basic components that are available for you to use when creating GWT user interfaces. It introduces some of the more common widgets and panels that will be used to develop an initial version of the sample application.

Chapter 5 builds on the knowledge gained in the previous chapter and introduces more advanced UI components. Among other things, you'll learn how to create your own custom UI elements that can be reused in any application. This chapter also discusses the role of the application architecture and design from the software development perspective, and provides tools to build robust, extensible, and maintainable code bases for your application. All techniques learned in this chapter will be put to action and applied on the sample application.

Chapter 6 introduces server-side communication and how it can be done in GWT applications. It explains the basics of such communication and covers the various mechanisms supported by GWT. By the end of this chapter, the GWTasks application will be a full-blown task management application with a solid server-side back end.

Chapter 7 discusses the important role testing has in the application development process. It introduces the different types of testing, from fine-grained unit testing to full-blown functional testing using third-party tools such as Selenium.

Chapter 8 enriches your knowledge and GWT expertise by discussing some of the more advanced features GWT has to offer. Each section in this chapter is dedicated to a specific topic that will help you build better and more advanced GWT applications. As opposed to the other chapters, each section in this chapter can be read independently of the others.

This book was specially structured to get you up-to-speed with GWT in a more efficient and practical manner. The sample application plays a major role in it, as it serves as a concrete example of how the theory can be applied.

Prerequisites

We assume that you have a good understanding of the Java programming language and are at least familiar with Java 5 features such as generics, annotations, and enum types. A good understanding of basic HTML is required as well, and knowledge of JavaScript will serve as an advantage (though it's not a requirement).

Downloading the Code

The code for the examples and the sample application in this book is available to readers in the Download section of the Apress web site at <http://www.apress.com>. Each chapter has associated code examples and optionally a relevant sample application version. Please feel free to visit the Apress web site and download all the code there. You can also check for errata and find related titles from Apress.