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An aerial photograph of a complex multi-level highway interchange. The image is in black and white, but several lanes are highlighted with a thick red and black striped border. The roads curve and cross each other at various levels, supported by concrete pillars. The overall scene is one of intricate engineering and infrastructure.

# Professional Mobile Application Development

Jeff McWherter, Scott Gowell



# PROFESSIONAL MOBILE APPLICATION DEVELOPMENT

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PROFESSIONAL

# Mobile Application Development



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*To my daughter Abigail Grace: I will help you to  
succeed in anything you choose to do in life.*

—JEFF MCWHERTER

*For Barbara and Charlotte, I couldn't have done it  
without you.*

—SCOTT GOWELL



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Throughout the years, the whole Gravity Works team has had the opportunity to attend hundreds of conferences and user groups targeted at developers, designers, and user interface experts. It is at these events that we meet other passionate people and learn new things. We would like to thank the organizers of these events, and encourage others to host more events on emerging technologies.

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# INTRODUCTION

**IN RECENT YEARS, MOBILE DEVICES** have gained popularity due to lower costs, small and sleek sizes, and the capability to act as a computer with you at all times. The increased use of mobile devices has created new issues for developers and network administrators, such as how to secure the devices, how to deal with increases in bandwidth, and how to make existing codebases usable on a device ten times smaller than it was designed for.

This book discusses these problems and many more, with a detailed overview of how to get started developing for a variety of mobile devices. If you are reading this, you are interested in learning about mobile development; we hope to give you the information and tools to start down the best path to develop a mobile application.

## Who This Book Is For

This book is targeted at anyone interested in mobile development. We assume the reader is a technical professional with some type of development experience during their career.

Whether you are a developer or a manager, this book explains key concepts and basic platform requirements for creating mobile applications.

## What This Book Covers

*Professional Mobile Application Development* covers the key concepts needed to develop mobile apps and mobile websites, using a variety of platforms and technologies:

- Whether to develop an app or a mobile website
- Why a mobile presence is important
- Mobile user interfaces design concepts
- Creating mobile web apps using responsive techniques
- Creating web services on the Microsoft stack for mobile consumption
- Creating web services on the Linux stack for mobile consumption
- Basics of Objective C
- Developing an iOS app from start to finish
- Basics of the Android SDK
- Developing a BlackBerry Java app
- Developing a BlackBerry WebWorks app
- Windows Phone 7 development

- Basic Java Script development
- Creating an app with PhoneGap
- Working with the Titanium framework to create an app

Each chapter discusses the tools, techniques, best practices, advantages, and disadvantages of each mobile development platform.

## How This Book Is Structured

Many readers of *Professional Mobile Application Development* will not have any experience with creating any type of mobile application, whereas others may have experience with some types of mobile platforms presented in this book. After the first few chapters, which are aimed at high-level design and platform decisions, this book is intended to allow a reader to “flip around” and read about mobile development for the platforms that are relevant to them, independent of other chapters.

## Chapter 1: Preliminary Considerations

This chapter starts with an introduction to what it takes to develop mobile apps. Mobile development is a hot trend right now, and many companies are jumping in, spending time developing a mobile strategy. With so many options available to develop mobile apps, this chapter discusses these options, weighing advantages and disadvantages.

## Chapter 2: Diving into Mobile: App or Website?

One of the most heated topics in the mobile world today is whether to design a mobile app or a mobile website, and this chapter is devoted entirely to this topic. After reading this chapter, you will have a good understanding of when you should develop a mobile app, and when a mobile website is sufficient.

## Chapter 3: Creating Consumable Web Services for Mobile Devices

Most mobile apps share data and need a way to persist this data to a server. In recent years, the bandwidth that mobile apps use has increased drastically. This chapter discusses how to create services that your mobile app can consume. It discusses various options on both Windows and UNIX platform stacks.

## Chapter 4: Mobile User Interface Design

Mobile interfaces are a young medium, and difficult: designers work with a telescoped view of almost limitless information. The constraints of this rapidly growing context give teams the opportunity to focus and innovate as devices and best practices evolve. This chapter gives an in-depth look at mobile design patterns and usability practices.

## **Chapter 5: Mobile Websites**

With the growing use of mobile devices for everyday web browsing, it's important to provide website interfaces that are easy to use on these devices. From mobilizing an existing website to designing a completely new one, this chapter discusses tools and techniques to create mobile websites.

## **Chapter 6: Getting Started with Android**

Currently Android holds the top spot in mobile device market share. Android development should be at the forefront of your mobile app strategy. This chapter discusses what it takes to get started developing apps on the Android platform. From start to finish, it provides all the resources for a developer who has never developed on the Android platform to deploy an app.

## **Chapter 7: Getting Started with iOS**

iPhones and iPads have become the devices that many people compare other mobile devices to. Apple devices helped launch the mobile trend, but many developers are hesitant to start developing for iOS because of the tools that Apple provides. This chapter will help alleviate your worries, and provide clear examples of what it takes to develop an iOS app from start to finish and deploy to iTunes.

## **Chapter 8: Getting Started with Windows Phone 7**

Windows Phone 7 is considered the new kid on the block when it comes to mobile platforms. Even though the market share is low, it is climbing fast, and is important to include within your mobile app strategy. This chapter covers everything you need to create a Windows Phone 7 app from start to finish and deploy to the market.

## **Chapter 9: Getting Started with BlackBerry**

This chapter provides the reader with the knowledge of the necessary tools required to develop mobile apps for the BlackBerry platform. Even though BlackBerry has lost market share in recent years, it's still important to understand where BlackBerry fits within your mobile strategy.

## **Chapter 10: Getting Started with Appcelerator Titanium**

This chapter is the first chapter in which mobile apps are created using a framework instead of the native tools. Appcelerator Titanium enables developers to create cross-platform mobile apps using JavaScript. This chapter explores tools and best practices that will enable you to start developing with Titanium in no time.

## **Chapter 11: Getting Started with PhoneGap**

PhoneGap enables developers to create cross-platform mobile apps using HTML and JavaScript. Because of this, PhoneGap is an excellent solution for developers with HTML and JavaScript experience. This chapter explores this platform in depth and what it takes to get started developing with PhoneGap.

## Chapter 12: Getting Started with MonoTouch and Mono for Android

The final chapter of this book looks at developing iOS and Android apps using the Mono development stack. Using Mono enables developers to create mobile apps using C#, which is an appealing option for cross-platform mobile development, especially in environments where developers are proficient in C#.

### CONVENTIONS

To help you get the most from the text and keep track of what's happening, we've used a number of conventions throughout the book.



*Warnings hold important, not-to-be-forgotten information that is directly relevant to the surrounding text.*



*Notes indicates notes, tips, hints, tricks, and asides to the current discussion.*

As for styles in the text:

- ▶ We *highlight* new terms and important words when we introduce them.
- ▶ We show keyboard strokes like this: `Ctrl+A`.
- ▶ We show filenames, URLs, and code within the text like so: `persistence.properties`.
- ▶ We present code in two different ways:

We use a monofont type with no highlighting for most code examples.

We use **bold** to emphasize code that is particularly important in the present context or to show changes from a previous code snippet.

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