

Practical Palm Pre webOS Projects



Frank W. Zammetti

Apress®

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The source code for this book is available to readers at <http://www.apress.com>. You will need to answer questions pertaining to this book in order to successfully download the code.

This book is dedicated to all the unsung heroes of the world, those who the absence of which would degrade all our lives to the point where the sweet release of death would seem preferable to continuing this mortal existence. Ironically, the absence of those I refer to would all but guarantee this outcome!

I of course refer here to the constants of the physical world:

G, the gravitational constant, whose vigilance secures us to this very world;

c, the speed of light, who dictates the universal structure of the space-time continuum in which we live;

h, Planck's constant, the existence of which defines the size of quanta used to describe light and other entities upon which we depend;

e, the electric constant, which gives rise to the properties of the electromagnetic fields our technology depends upon;

and finally, the Boltzmann constant, without which the relationship of energy at the particle level to the temperature at the bulk level would be unknown to us.

I thank you all, and your unnamed brethren, on behalf of all who inhabit this universe!

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Foreword

The Web will win. That statement may seem provocative perhaps, but for many the Web has already won and just needs to finish growing up and become the full-featured platform it is destined to be. The Web is the platform of choice for millions of developers, and the emergence of the mobile Web is only going to attract more developers as they discover the uniquely new applications that can be built for it.

For me, it was clear with the introduction of Gmail in 2004 and Google Maps in 2005 that soon anyone would be able to build desktop-class applications using web technologies. Now, Ajax applications have become mainstream, and much of what was possible only with native applications running on a desktop computer can now be done with web applications. And better than native applications, web applications are built to be connected; are built to work with fresh, dynamic data that's frequently updated; and are developed with much less time and effort.

Although all platforms support the Web, only Palm's webOS embraces the Web to its core, allowing web applications access to the underlying operating system and hardware that native applications have enjoyed for years. Only webOS provides web applications with a full life cycle: webOS applications can run in the foreground and background and are supported by an elegant notification system. And webOS accomplishes this using a rich and beautiful UI built with the convergence of the Web and mobile devices in mind.

All other platforms segregate web applications in the web browser, separating them from the rest of the device and not giving them the power, outside of their sandbox, that the proprietary native applications enjoy. This separation implies that web applications are inferior, but the web platform is evolving and will soon stand near equal to conventional platforms. HTML 5 standards for local storage, web workers, canvas, geolocation services, and more are narrowing that gap, and efforts by Mozilla, Google, and others are driving the Web forward in other areas like 3D and graphics. The engines that the web platform run on have grown exponentially too. The new JavaScript engines of V8, TraceMonkey, and Nitro deliver leading-edge VMs that can lead with performance and advanced memory management.

It's a great time to be a developer. Web development is fast and iterative; you can build something bit by bit and see it come to life. With webOS, you can bring that experience to mobile devices. It doesn't matter whether you're a professional, trying to craft the ultimate, high-performance service, or a hobbyist, looking to explore some ideas and build something for yourself. Wherever you are on the spectrum, you can apply your skills to webOS, learning what you need from this book.

Frank W. Zammetti has written a terrific book. He gives you some hard reference material to learn webOS and the Mojo framework, from concepts to detailed methods and interfaces, and for those of you who just want practical examples and to jump into coding, he's got some projects that are both practical and fun.

Most of all, it's about developers being developers and having fun with software. So dive in, have fun, and write some apps!

Mitch Allen, CTO of Software at Palm, Inc.
Sunnyvale, California
November 2009

About the Author

■ **Frank W. Zammetti** is a genius of unspeakable evil, and I want to be your class president (go Google that phrase now!). He has written a number of books for Apress about web development, has been the keyboardist for a failed progressive-metal band, has jumped out of a perfectly good airplane, and believes the moon landing was in fact real but cannot believe for even a second that *Two and a Half Men* is still on the air!

I'm here all week folks. ☺

Frank is a lead developer for a major financial company in the United States who he has been with for 13 years. He is the creator of a number of open source projects and a contributor to many more. Frank has done some public-speaking engagements for various groups and technology conferences. He has written a number of articles for various publications and has started his own small business developing mobile/cloud-based software products for various platforms.

Frank likes walks in the park, sunset dinners, and flowers blooming in the meadow in April.

He is an avid human being who enjoys existing and considers it his greatest accomplishment. Frank is husband to a great dame named Traci, his best girl, his Gal Friday even. He is father to two eaters of his food and spenders of his money named Andrew and Ashley who he hopes are one day rich so they can afford the very best retirement home for him.

About the Technical Reviewer



■ **Greg Hrebek** is a developer, consultant, and technical reviewer in cutting-edge technologies. His consulting company Syntactix LLC specializes in system development for all phases of the development life cycle. Currently it offers a shipment-tracking application called Pack 'n' Track for webOS and have many more innovative applications on the way. He can be found online at <http://www.gosyntactix.com>.

Acknowledgments

I've written six books for Apress thus far, and in each and every case I could not have done it without the help of a lot of great folks, and this book is no exception! I'd like to thank Fran Parnell, who was an especially pleasant project manager to work for; Frank Pohlmann, who served as a fantastic editor and who actually brought the initial idea for the book together; and Kim Wimpsett, who kept me honest as the copy editor this time around. If I somehow missed anyone, please accept my apologies and heartfelt thanks! I've had a great time working with all of you, and this book very much continues my very positive experience writing for Apress (even after we compressed the schedule!).

I'd also like to thank a couple of folks at Palm who were a huge help as well, starting with Mitch Allen who was invaluable in making this book happen in so many ways I can't count them all! Chuq Von Rospach also provided assistance a couple of times, even if he doesn't know he did, via forum posts. Lisa Brewster and Judy Vander Sluis helped expedite the applications from the book getting into the App Catalog. Dion Almaer and Ben Galbraith lent some assistance as well near the end. Thanks to all of you, and keep up the great work!

Introduction

When I was but a wee lass, my school—the first on Long Island, New York, I remember being told—got this thing called a *computer*. I vaguely remember hearing about such a contraption in sci-fi shows like *Star Trek*, but I didn't really know what it was. At that time, one of the teachers who had taken the lead there, a great guy by the name of Mr. Mincio, asked the five best students in the school, of which I was one at the time (I didn't keep that up for much longer, but I digress), to join the fledgling “computer club.” Four of us said yes.

I'm very glad I did because that decision has charted the course for much of my life. Interestingly, three weeks later, I was the only student who stuck around. Everyone else wanted out.

Later that year, my parents bought me my first computer for Christmas: a Timex Sinclair 1000. That was, by any standard of almost any day, decidedly not a great piece of hardware. That didn't matter to me, though; I couldn't be happier with it, and I learned more than I can recount with it.

Those early days of my career in computers were immensely exciting. Everything was new, every now seemingly mundane programming trick learned was a wonder, and every seemingly clever hack figured out was of Aristotelian proportion. There was great joy to be had in simply learning, in experimenting, and in figuring out what these wondrous machines could do!

Shortly thereafter, I graduated to a much better computer: an Atari 800XL. There I started to play with the Assembly language and really began understanding the machine through game programming. A year or so later I finally had saved up for the machine that really brought it altogether, a Commodore 64. Things were never the same for me after that (and, oh, do I have some stories I could tell you from those days!).

The theme of fun, excitement, and figuring out what a new platform is capable of is something I've rarely had the joy of experiencing since that period in my life, which is a real downer! Fortunately, Palm has remedied that with its creation of webOS!

It may sound corny, or a little self-serving given that I've written a book on the subject, but I can say with all honesty that the experience I've had with webOS thus far mimics that excitement—that feeling of being on a journey of discovery. I don't know what OS the smartphones of the future will run and I don't know if it'll be a Palm OS or not (I'm sure Google and Apple will have something to say about that), but I firmly believe that we'll see the immense influence that webOS had on that OS.

You are in for a journey, that's for sure! I believe you'll find webOS to be a very fun environment to play in, and I hope you'll have at least some small measure of the excitement I've had with it.

Who This Book Is For

This book is for programmers. More precisely, it's for programmers who favor the “learn by example” approach.

I don't know about you, but I've ready plenty of books and articles where all they present are fragments of applications and small, contrived bits of code to illustrate a given point. Now, without

question, that is sometimes precisely what you want. Oftentimes, however, what you really want is a whole application that is explained in its entirety so you can see how all the pieces fit together as you explore it little by little. This is precisely what this book seeks to do.

This book presupposes some knowledge on your part, though. Palm’s webOS utilizes a web technology development model, meaning you’re working with HTML, CSS, and JavaScript. It would obviously take a book probably four times the size of this one to teach you all that, so it is assumed that you’ve got a decent foundation in those topics and in web development in general.

What you *don’t* need, however, is experience developing for mobile platforms of any sort. One benefit to the model Palm has chosen with webOS is that it truly is just web development, and it doesn’t matter whether you’ve never developed for a smartphone before.

An Overview of This Book

I’ve broken the book down into two parts. The first part is comprised of the first two chapters, and the second part consists of the final five chapters. The first part introduces the basics of webOS, introduces the Palm Pre, and introduces the tools required to work with them. The second part consists of five individual, real webOS applications.

More precisely, here is what you’ll find inside:

- Chapter 1 gives a brief history of the smartphone, the Internet (because it’s core to webOS), how they’ve converged, and what the result has been. This chapter goes into the basics of webOS, introduces the Palm Pre and its hardware, describes its user interface design, and introduces the Mojo JavaScript framework that is the basis of all webOS applications. It describes the tools you’ll need and how to set them up and ends with your average, prototypical “Hello World” application.
- Chapter 2 goes into quite a bit of detail about Mojo and the widgets available for use in webOS applications and discusses the on-device services that give you access to the features of the phone.
- Chapter 3 presents the first application, Code Cabinet. This is a utility for programmers where they can store snippets of code, categorize them, and search for them. Here you’ll get an introduction to things like widgets, Mojo, and the on-device database facilities.
- Chapter 4 presents the Local Business Search application, which allows the user to look for businesses in the area around them. Here you’ll see a few neat UI tricks including the “dark” UI theme. You’ll get to play with the GPS capabilities of the Pre, and you’ll see how to use remote web services in your webOS applications.
- Chapter 5 explores a game, Engineer. This gives you some exposure to the `<canvas>` tag and how to use it as well as the accelerometer services available in your applications. You’ll learn about events and some more widget goodness.
- Chapter 6 introduces the Twitter Monitor application. This runs in the background and monitors your friends on Twitter and alerts you when specified keywords appear in their tweets. You’ll learn about background applications, multistage applications, and more about interacting with remote services.
- Chapter 7 is where you’ll find the Time Tracker application, the largest of them all that brings a lot of what you will have learned up until then together. This is a cloud-based application that uses a server-side component running in the Google App Engine (and yes, we’ll be exploring that code too!). The application allows you to track the time booked against projects and see summaries of their status. You’ll be introduced to a bunch of new widgets and new Mojo API functions, and generally you’ll get a really good look at a lot of webOS concepts altogether.

There's a lot of ground to cover, but it's going to be a heck of a ride, I promise!

Obtaining Source Code

If you're anything like me, you'll agree that work sucks. What I mean is, effort that isn't actually necessary tends to not be something I enjoy. Or, to put it more succinctly, I'm lazy!

However, I generally try to get as much code printed in my books as possible so that they pass the Bathroom Test™; that is, you can read them during your...how shall I say it...private time and basically be able to follow everything along.

That being said, this isn't the mid-1980s where you'd happily open up your copy of *RUN* (an old Commodore 64-focused magazine) and type in the 20 pages of machine language code for the parachuting game the magazine published. No, we're better than that now (read: lazier), and typing in all the code yourself would be a monumental waste of your valuable time. Therefore, all the source code for this book is available for download on the Apress web site (<http://www.apress.com>). Simply go to Apress.com, click the Source Code link, and then find this book in the list. Click it, and you'll find a download link lurking somewhere on the next page.

Obtaining Updates

As my wife will no doubt tell you at the slightest provocation, I am far from perfect, regardless of what I may say. As all good authors¹ no doubt try to do, I've done my best to make sure everything here is accurate, correct, and true. Plus, there has been a technical reviewer checking it out; there has been my editor checking it out; and there has been a copy editor, production editor, and so on, down the line.

All that being said, mistakes are likely to have crept in quite by accident. Especially given that webOS is still quite new, as well as that it was just barely released when I started writing this book and there were changes along the way, it's even more likely that there are some errors.

Thankfully, Apress maintains an errata list for its books like any good publisher does, and you can access that on its web site just by searching for this book. You can submit errata for anything you find, and I for one will thank you in advance for doing so because it only helps anyone who reads this book.

Contacting the Author

I'm quite an easy guy to get a hold of; I'm not exactly one of those people who try to hide themselves on the Internet.

If you take that to mean I have an ego the size of Mt. Kilimanjaro, you're about right!

If you'd like to contact me for any reason, even identity theft (take it, it ain't worth much!), then feel perfectly free to do so at fzammetti@etherient.com. I also maintain a blog at www.zammetti.com, and I'm on Twitter under [fzammetti](#). You can even catch me on IM if you want: on AOL I'm [fzammetti](#), on Yahoo! I'm [fzammetti](#), and on MSN I'm fzammetti@hotmail.com.

Or you can go buy a giant surplus doomsday laser weapon and etch a message on the face of the moon to me. Go ahead; I don't think anyone will mind.²

¹ How's that for the power of positive thinking?

² Zapping Paris with said laser weapon is *not* recommended, however!