Practical Dojo Projects

Frank W. Zammetti

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I've written four books now, including this one, and I've thanked a lot of people. From the usual suspects such as my wife, children, parents, and friends, to the unusual: fictional characters, various food, alien species, and even myself! At one point I said I had dedicated a book to everyone who matters, but it was my mother-in-law who pointed out I hadn't dedicated anything to her and thus hadn't dedicated a book to everyone who matters.

That got me to thinking. I've actually left out a few important people along the way, so let me try to cover all the bases this time around:

Albert Einstein, Babe Ruth, George Washington, Francis Ford Coppola, Jean-Luc Picard, Rick Wakeman, John Adams, Galileo Galilei, Lenny Bruce, Les Paul, Leonard Nimoy, Mickey Mantle, Steve Wozniak, Karl Schwarzschild, Lee Majors, Bruce Campbell, Robert Kennedy, Wicket the Ewok, Rodney Dangerfield, Ric Flair, Lee and Bill Adama, Scott Baio, Christian Troy, Wally Schirra, Wilton Parmenter, Rod Serling, Nikolai Volkoff, the two old men on The Muppet Show*, and of course Davros and The Doctor.*

Oh yes . . . and my mother-in-law.
Now stop bugging me! ☺

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About the Author

FRANK W. ZAMMETTI is a Sun worshipper who never really got over the cancellation of *The Greatest American Hero* in the '80s. He is an avid indoorsman who spends his time contemplating all the possible ways he may one day depart this mortal coil involving tomatoes, giant foam fingers, and/or caterpillars. In addition, Frank is a developer of software applications for a large, global bank. He is a father, husband, and walker of the family dog. He lives, works, but mostly plays in the northeastern United States (although clearly not all of his mind inhabits that same location). Frank has now written four books, including this one, covering a wide range of topics from JavaScript, DOM Scripting, and Ajax to DWR (an Ajax library) to Ajax with Java technologies, and of course Dojo, which includes Ajax functionality. He continues to work on various world-changing technological advancements on the side that will likely be released as finished products by real companies some time next week, as is usually the case with every good idea he's ever had. He is a contributor to a number of open source projects (even some that probably would prefer he wasn't!) and is leader/founder of a couple, too.

Frank also rarely takes anything seriously, in case you hadn't figured that out by now!

About the Technical Reviewer

HERMAN VAN ROSMALEN works as a developer/software architect for De Nederlandsche Bank N.V., the central bank of the Netherlands. He has more than 20 years of experience in developing software applications in a variety of programming languages. Herman has been involved in building mainframe, PC, and client/server applications. Since 2000, however, he has been involved mainly in building all sorts of Java EE web-based applications. After working with Struts for years (pre-1.0), he got interested in Ajax and joined the Java Web Parts open source project in 2005. Herman also served as technical editor for the Apress titles *Practical Ajax Projects with Java Technology*; *Practical JavaScript, DOM Scripting, and Ajax Projects*; and *Practical DWR 2 Projects*. Herman lives in a small town, Pijnacker, in the Netherlands with his wife Liesbeth and their children, Barbara, Leonie, and Ramon. You can reach him via e-mail at herros@gmail.com.

About the Illustrator

ANTHONY VOLPE is the name of the dude who did the illustrations for this book. He has worked on several video games for various platforms with author Frank Zammetti, including Invasion: Trivia!, IO Lander, K&G Arcade, Spinshot, and Ajax Warrior. Anthony lives in Collegeville, Pennsylvania, and works as a graphic designer and front-end web developer. His hobbies include recording music, writing fiction, making video games, and going to karaoke bars to make a spectacle of himself. To check out all the madness, go here: `www.planetvolpe.com`. You'll find that Anthony is a supremely multitalented guy and also a little . . . off-kilter . . . but in a very good way!

Acknowledgments

This is actually one of the few places in this book where I'm (err, mostly) serious, not my usual tongue-in-cheek self.

I quickly came to realize, upon writing the acknowledgments for my first book a few years ago, that a project of this nature doesn't get done without a lot of help from a lot of folks. Sure, the author is effectively the engine driving things, but an engine without wheels, or a steering wheel, or headlights, or a real good stereo system doesn't make a car on its own, and such is the case with writing a book.

So, I'd like to take this opportunity to thank all those who helped get this one out the door: Steve Anglin, editor, for getting this thing going in the first place. Sofia Marchant, project manager, who kept me on schedule throughout. Sharon Wilkey, copy editor, who made my gibberish (somewhat) coherent. Laura Cheu, production editor, for making it all look good. Herman van Rosmalen, technical reviewer extraordinaire, for making me pay attention to IE7. Anthony Volpe, illustrator, for saving me from having to draw stick figures colored with crayons. And also Joohn Choe, Jimi Browne, and Dominic Shakeshaft for making my experience with Apress what I've come to expect it to be: a very pleasant experience all around.

I'd also like to thank all the fine programmers contributing to the Dojo project itself. Not only did your efforts enable me to write this book (and by extension to make some extra money!), but you've also helped me get things done at my regular day job that would have otherwise taken months of effort to do myself. I think I can safely speak for everyone using Dojo when I say thank you very much; your efforts are most definitely appreciated.

Last but most definitely not least, I'd like to thank *you*, dear reader, for purchasing this book. It's cliché for sports figures to say they couldn't do it without the fans, but there's truth in it, just as there's truth in an author saying I couldn't do it without the readers. You are very much appreciated by this author!

Oh yeah, I almost forgot: thank you to the Higgs boson. *None* of us could've done *any* of it without you! See you later!

Introduction

I've been developing software for a *long* time, by anyone's count: over 25 years, about 15 or so of that "professionally" (meaning 15 years or so I've been getting paid to pretend I know what I'm doing). I've been doing web development specifically for something like 10 or so of those years. I can say, with all honesty, that I was ahead of the curve a number of times. I was writing what we all now call RIAs back around 1998 (two of the apps I wrote in that time frame are still in production, amazingly). I was one of those people who invented Ajax way back then, but didn't think it was anything special and didn't come up with a cute name for it, and hence I am not the one rich and famous for coining an acronym!

None of this is especially important, and I'm not even trying to impress you by saying any of it. I'm just setting the foundation for being able to honestly say this: I've seen a lot. I've done a lot of client-side development. I've seen the evolution from doing absolutely everything yourself, dealing with all the complexities and cross-browser issues, to where we are today, where you basically don't write anything from scratch anymore, you find a good library (or combination of libraries) and proceed from there. This is the same evolution that every other programming language and/or platform has taken; it's just the natural way of things. People over time figure out what works, encapsulate it in some generic, reusable code (a library), and everyone is the better for their efforts.

I've used a large number of libraries over the years too. Some have been very good; some have been very bad; some, of course, were somewhere in the middle. One of the biggest today also happens to be one of the best ever: Dojo.

However, Dojo in a way suffers from its own goodness: it's a bit difficult to wrap your brain around. It's capable of doing so much that understanding what it can do, and understanding how to use it, can be a challenge.

That's why I've written this book. You see, I've used Dojo in a highly complex application on the job, and I've seen the power it offers, but I've also faced the challenge I'm talking about here. My hope is that this book saves you some of the effort I went through and gets you to the point of using Dojo to its full (and considerable) potential quickly.

I also wrote this book because I believe many developers want and really need a "practical" way to learn something like Dojo. We've all seen the articles on the Net that purport to teach you something but do so by showing you simplistic, contrived, limited examples. This sometimes works, but often you hear people saying, "I wish I had a real application so I could see what this article is talking about in a larger context." Many developers like to have code they can rip apart and comprehend on their own, and that's what I'm trying to offer with this book.

I think you're going to like Dojo a lot. In fact, I *know* you will because it will make some very complex things amazingly simple. It will save you a ton of time and effort and enable you to impress your boss in short order! It is without question one of the most forward-looking libraries out there today. There are always very cool new features being explored in Dojo, stuff that you often wouldn't even think is possible in a browser. It's just plain fun to play with sometimes!

Now, if you like and have even half as much fun with this book as you do with Dojo, then we're in good shape . . . but that's my job, isn't it?

Overview of This Book

This book is divided into two parts. The first is more "introductory" in nature:

- Chapter 1 is an introduction to Dojo. We'll start by looking at client-side development more generically, talk about JavaScript's evolution a bit, and finally the evolution of libraries. We'll look at Dojo's philosophy, its overall structure, and some of what it offers.
- Chapter 2 is where we'll delve into the first major component of Dojo: Core. We'll see many of the functions it has to offer, and see examples of each. (Yes, these are small, contrived examples, contrary to what I've said elsewhere, but that's what's needed in this section.)
- Chapter 3 is a detailed look at Dijit, which is where the Dojo GUI widgets are housed.
- Chapter 4 takes a look at DojoX, where the eXperimental components in Dojo live (and, in my opinion, where some of the very coolest parts of Dojo can be found).

In Part 2 we'll jump into the four applications:

- Chapter 5 is where we'll build a contact management application that uses the Dojo storage system to store contacts client-side. We'll get a look at our first dijit too, as well as an introduction to Google's Gears project.
- Chapter 6 presents the code cabinet, an application where you can store code snippets, categorize them, and search for them. We'll get into Dijit a great deal more and see Dojo's data abstraction layer.
- Chapter 7 gives you a break from the more serious applications and shows you how to create a game using Dojo. You'll see Dojo's extensive graphics capabilities in action here.
- Chapter 8 is where you'll find a mashup that uses some publicly available web services to look for businesses around a given area, and show a map of that business. You'll be able to store favorites client-side with this application. You'll see much more of Dijit, the storage system, and lots of Core functionality.

There's lots to cover, but by the end I believe you'll have a good feel for Dojo and will be able to leap ahead in your own projects with it.

Obtaining This Book's Source Code

I remember the days when programming books came with a CD containing all the source code presented in the book. These days, with the advent of the Internet, publishers can frankly save some money, and ultimately generate more profit, by using the Internet to provide that source code, and that's precisely the case with this book.

To obtain the source code for this book, hop on over to `www.apress.com` and click the Source Code/Download link. Find this book in the list and you'll be able to pull down a (fairly large) archive with all the code.

Please note that this book is written with the assumption that you have done this, and have the code ready to look at. Unfortunately, when writing a book you sometimes have to make compromises in the interest of keeping the page count down (and also of not having 50 pages of code in a row, which no one would want to read!). This compromise often means that some of the code isn't printed in the book, and such is the case here. I have a personal philosophy that you should be able to read a programming book in the bathroom, gross as that may seem! Therefore, I've tried very hard to show as much code as possible, and to always show the truly pertinent parts when I couldn't show something in its entirety. Still, it is assumed that you have the code, can (or already have) played with the applications when you begin each chapter, and can refer to the full code as needed. This will all enhance your ability to understand things as you progress through the chapters.

Besides that, the applications are fun to play with, so if for no other reason than that, download the source bundle and have it available before you go too much further.

Obtaining Updates for This Book

No expense has been spared to ensure the accuracy and correctness of everything in this book. We've sacrificed goats to the gods, paid off politicians, tossed salt over our shoulders, and otherwise worked very hard to do our best.

All of that likely won't matter, though, because we're human, and mistakes unfortunately happen.

Because of this, a current errata list is available on the home page for this book on the Apress web site. You can, and I thank you in advance if you do, submit errata for anything you find. Hopefully you won't need to, but few books of this nature get through unscathed. Everyone on the team that made this book happen has done their best to make this one of those few books, but you never know.

I personally apologize unreservedly in advance. I know that I'll rue the day mistakes are found. (*Rue the day*? Who talks like that?) If you find any, I'll buy you a car. I don't have a car; it's my dad's. But then again, didn't anyone ever tell you to make sure your optics are clean?

Contacting the Author

Like most authors, I despise people and like to interact with them as little as possible. I'm a hermit who lives beyond the Dune Sea, content to make Sand People run trembling in fear from my ability to throw weird sounds wherever I choose.

But, if you'd like to contact me anyway (perhaps you have some droids you believe may be mine?), you can contact me at `fzammetti@omnytex.com`.

(That was of course sarcastic. I don't despise people. Well, some of them, but that's for another book. Feel free to contact me about anything you want. Sending money would be better, but I'll take a "hello, how you doin'" too!)