Foundations of JSP Design Patterns

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EDITED BY MATTHEW MOODIE

APress Media, LLC

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Originally published by Springer-Verlag New York, Inc. in 2004

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ISBN 978-1-59059-411-7 ISBN 978-1-4302-0736-8 (eBook)

DOI 10.1007/978-1-4302-0736-8

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About the Author

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About the Editor

■ **MATTHEW MOODIE** enjoys a life of fun in Glasgow, Scotland. He's a keen novice gardener with a houseful of plants. He'd like to thank Laura for her love and friendship.

Introduction

This book is for developers of all levels that want to make their projects efficient, flexible, and well designed. In other words, this book is for every developer who works with JSP and servlets.

The book begins with a quick introduction to JSP for those who are new to JSP, those who may be a bit rusty following the release of a new specification, or those with a lack of recent experience. Therefore, Chapters 1 and 2 cover the basics of the JSP 2.0 Specification and describe the syntax and commands used to produce dynamic content. The best practice theme of the book is introduced here so that you don't pick up bad habits from the beginning. It's this reliance on best practices that means you don't need to know much, if any, Java to use this book; the JSP 2.0 Specification makes it easy to avoid Java altogether and still achieve excellent results.

After the two introductory chapters, you'll move into the real thrust of the book. Chapters 3 and 4 take the roles of Java developer and page designer and separate them firmly but fairly. This ensures that each side of a web application is clearly defined and enforces areas of responsibility. In other words, a page designer doesn't get to work with the innards of the application, mainly because the JSP 2.0 Specification makes it easy for a developer to create designer-friendly interface, and the developer works with the application's data model. Again, Java used to be at the heart of this separation, but now little Java is needed to be an effective JSP developer.

Once the distinction between developer and designer has been set up, the natural progression is to show you how to present the designer-friendly interface to a designer. This is accomplished by separating the application into layers, or *tiers* as they are commonly known, and by creating a web tier (called the *view*), a middle tier containing control logic (part of which is the *controller*), and a data layer (the *model*). The view is the part of the application that the designer will work on, and it's here that design patterns can play an important part in simplifying and streamlining the public face of the application.

Chapters 5, 6, 7, and 8 present design patterns that have been tried and tested over many years of web development. They're standard and widely used in the industry and are therefore well understood. Each design pattern solves a certain problem associated with the view of the application. Chapter 5 lays the foundations for these design patterns by describing the Model-View-Controller (MVC) architecture already mentioned. (You may hear it called *Model 2* architecture.) All the design patterns require you to have an MVC architecture.

Chapter 6 introduces the Decorating Filter pattern, which you can use to intercept HTTP requests and responses and do what you like with them. This is one topic that requires you to know Java because it's the Java Servlet Specification that defines filters and not the JSP Specification. Filters can log activity in your application, redirect requests based on IP addresses, and much more.

Chapter 7 is the core of the pattern methodology section. It describes the Front Controller pattern, which uses a single component to control all entry to the application. In other words, it receives all the requests, processes them (sometimes with the help of additional components),

and decides which part of the view (that is, which web page) the user should see as a result. The controller is where all the logic of the application is stored, allowing you to centralize all your application code. This centralized, single point of entry allows you to add more functionality easily. Chapter 8 finishes the pattern section with a look at the View Helper pattern, which is the main technique for adding application-specific functionality to the view. This is the fabled designer-friendly interface made corporeal.

This marks the end of the main coding/best practice material and is the beginning of the methodology and deployment chapters. Chapter 9 shows you how to test your application once you've written it. This is a crucial step, and no serious piece of code should go into production without passing a series of tests. Luckily, this chapter makes it easy for you to set up your own test suite using the JUnit test framework, which is open-source, of course. Once you've tested that your application works as expected, you should ideally load test it. This ensures you get the best performance possible from your application. However, this is sometimes possible only once the application has gone into production.

Chapter 10 shows you how to organize your code and how to automate the deployment process. These subjects are closely related, as automated deployment requires organized code. If your project is large, you may have more than one developer working on it, so organization is even more important. Automating deployment makes life easier for all concerned by taking away the chore of deployment, even for the smallest change to source code. This chapter discusses general programming theory first and then shows how to use JSP and servlets in practice.

Chapters 11 and 12 pull the rest of the book together by describing an application framework that embodies all the ideas and theories of the previous ten chapters. This application serves as a reference implementation for any application framework you may want to implement or use in the future.