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Henri Jubin

and the Jalapeño Team

International Technical Support Organization

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Henri Jubin
and the
Jalapeño Team

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Preface

Java, in a relatively short period of time, has emerged as the de facto standard for creating applications for the Internet, and, consequently, for enterprise intranets. "Write once, run anywhere" has become a reality with Java. Java Virtual Machines (JVMs) are available for nearly every computing platform, including all IBM operating systems (from OS/2 Warp to OS/390), Microsoft Windows, Apple Macintosh, UNIX, and even new devices such as the IBM Network Station and telephony devices. Java is ideally suited to the Internet (and intranets), with compact code size, robust security features, windowing toolkits, database access capabilities, multimedia features, and more. For the enterprise, in-house Java applications can be more easily and quickly distributed, even to customers outside the enterprise who might need selective access to information. Furthermore, because Java is platform neutral, both in-house and public versions of Java applications reach the widest possible audience, now and in the future.

While Java itself is a highly object-oriented language, until recently there was no standard technology to help programmers build Java components which interact with one another in common ways. Consequently, "beans" were born. JavaBeans can be created, reused, modified and assembled into feature-rich applications. This book focuses on the benefits of JavaBeans and how to take advantage of them, particularly in the enterprise.

Introduction

Understand what JavaBeans are, how they are built and how they can be used and reused. Although the focus is on JavaBeans, special attention is paid to the enterprise environment. For anyone trying to build applications for the enterprise environment, topics such as distributed objects and accessing legacy databases become important.

JavaBeans provide an interesting solution to many of the issues which arise in the enterprise environment. They provide a means of packaging functionality into reusable units which can then be spread throughout the enterprise. In addition, beans are designed to be able to be manipulated visually using a visual builder tool.

The Authors

This book was written by the Jalapeño Team, an international group of IBM software engineers.

The organizer and guiding spirit for the Jalapeño Team is Henri Jubin. Henri currently works for the International Technical Support Organization (ITSO) in Austin, where he covers the area of Object Oriented Technology. Henri has previously worked in various support and consulting positions within IBM France. He has dealt with topics such as Object-Oriented Technology and OS/2. Henri has lived in France and Spain.

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The Jalapeño Team would like to thank the following people for their help and contributions:

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Chapter 1

How to Use This Book

- INTRODUCTION
- THE CHILI PEPPER STORY
- THE STRUCTURE OF THE BOOK

This chapter is divided into three sections: an introduction to the contents of the book, an introduction to a story used throughout the book to illustrate ideas and concepts, and a guide on how the book is to be used.

Introduction

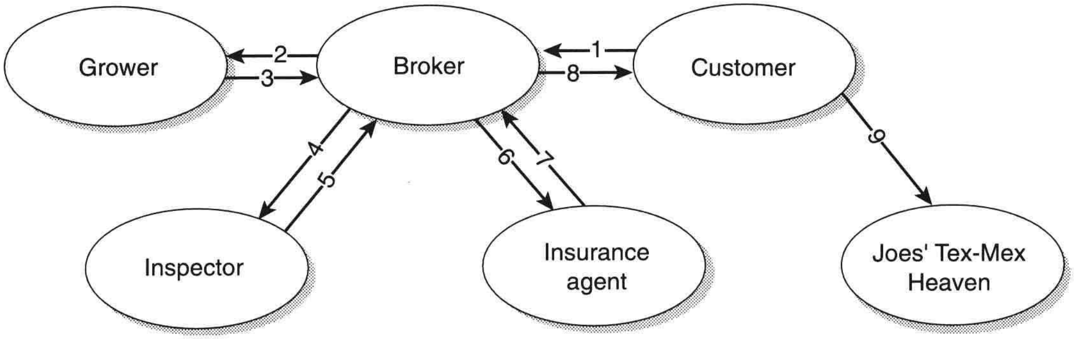
The purpose of this book is to give the reader an overview of what JavaBeans are, how they are built, and how they can be used and reused. Although the focus is on beans, special attention is paid to the enterprise environment. For anyone trying to build applications for the enterprise environment, topics such as distributed objects and accessing legacy databases become particularly important. Beans provide an interesting solution to many of the common problems that arise in enterprise application development. They provide a means of packaging functionality into reusable units that can then be shared throughout the enterprise. However, beans cannot by themselves ensure reusability. Several conditions must be met in order to exploit the potential that beans offer. In particular, an object reuse policy and philosophy must be implemented and enforced throughout the enterprise.

Beans are designed to be manipulated visually by using a visual builder tool. Consequently, enterprises that have already begun to use visual programming techniques will find it relatively easy to use beans. Visual programming allows for the separation and concentration of skills among developers. Highly skilled developers build and make available beans for other developers with more business knowledge (and perhaps less technical expertise) to assemble into custom applications.

In reading this book the discerning reader will find many references to chili peppers, brokers and growers as well as recipes for using chili peppers. Lest the reader worry that Java has spawned a new generation of edible and delectable components, rest assured this is not the case. The authors have simply made use of their common love for "hot, hot" foods to spice up the book. Many of the examples used to explain beans, as well as the sample application developed using beans, relate back to a story about a chili pepper broker.

The Chili Pepper Story

One of the great features of the American Southwest is the abundance of hot, spicy foods. A key ingredient in these foods is the chili pepper, usually small, little devils in various shades of red, yellow and green. In order to ensure a constant supply of peppers, brokers provide the crucial link between the growers and the distributors or consumers. A broker knows which peppers are available from which grower. When a broker is contacted by a customer for peppers, the broker knows which grower to contact to fill the order. The grower puts together a shipment and notifies the broker that the order has been filled. The broker then contacts a food and health inspector in order to have the shipment inspected. The inspector notifies the broker of the results. If the shipment has passed inspection, it must be insured before being shipped to the customer. After all, who wants to risk having an uninsured cargo of highly volatile peppers being lost? The insurer provides a policy for the shipment and notifies the broker that the shipment has been insured. At this point, the shipment can finally be sent to the customer. The customer, in turn, cooks a great meal at his restaurant, thus providing the sorely needed fuel for the authors of this book.



1. "Hey, I need some peppers."
2. "Hey, I need some peppers."
3. "Here's them peppers."
4. "Inspect these peppers."
5. "I'm done."
6. "Insure this shipment."
7. "I'm done."
8. "Here's your peppers."
9. "Now this is good food!"

The Structure of the Book

This book is designed with more than the just the technical reader in mind. The reader is not expected to read the book from cover to cover. Depending on your background and interests, certain chapters will be more useful or interesting than others.

Most chapters are self-contained, and can be read in almost any order. This first chapter provides a guideline for using the book. In addition, it introduces a common metaphor, the chili pepper story mentioned above. This chapter should be read by all. The remainder of the book is divided into three major sections: one on beans, one on building and using beans, and a final section that addresses additional topics such as reusing beans, tools that support beans, and more.

The first section is split into two chapters. The first chapter provides a high-level introduction to beans: what they are, the concepts behind them, and how they can be used. The following chapter provides a detailed explanation of the terms introduced in the previous chapter. The less technically versed reader may choose to look only at the summaries provided for each unit.

The second section describes the building of a chili pepper application using beans. It is also split into two chapters. The first chapter describes the actual building of the application. Again, summaries are provided for those who wish to skip the details. The second chapter describes additional features which are very important in the enterprise environment, such as printing, distributed objects, access to an existing database and support for international users. Although the chili pepper application itself will not be extended, detailed examples are provided for each feature.

The last section of the book discusses additional topics relating to beans. The packaging of beans using JAR files is discussed, as well as certain security issues related to the use of beans in applets. The use of signed applets can help beans in applets enjoy many of the same rights and privileges as beans in applications. A discussion of visual developments which support the development and reuse of beans is provided as well. To conclude this section, a detailed list of all the examples used in the book is provided as a quick reference for the reader who is looking for specific application ideas.

The appendix contains the programming guidelines used in writing the code found in this book as well as a complete documentation for the sample chili application (source code, analysis, design artifacts and the JavaDoc listing for the application).

Throughout the book, references to program code (including class names, methods, parameters and properties) are indicated by a fixed-width font. As an example: `ClassName`.

It is important to note that this is not a book about Java per se. There are a number of excellent books available that provide a detailed introduction to Java. References to some of these sources can be found throughout this book. This book discusses the features of the Java language that need to be understood in order to work with JavaBeans. A working knowledge of Java is not mandatory for readers of the book. However, for those readers who plan to use the book as a guide for actually working with beans, a working knowledge of Java is recommended.

Finally, exercise caution when trying out the examples and the recipes. You need to be careful not to burn yourself after handling the fresh chili peppers. Do not rub your eyes or other sensitive areas, and always wash your hands thoroughly after handling fresh chilis. In other words, the programs are examples, not ready-to-go applications. We designed them to illustrate how beans work, not necessarily how businesses work. Use the concepts, not the code, to create reliable, functional enterprise applications.