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Beginning PHP and PostgreSQL E-Commerce

From Novice to Professional

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Cristian Darie, Emilian Balanescu,
and Mihai Bucica

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Beginning PHP and PostgreSQL E-Commerce

From Novice to Professional



Cristian Darie, Emilian Balanescu,
Mihai Bucica

Beginning PHP and PostgreSQL E-Commerce: From Novice to Professional

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Introduction

Welcome to *Beginning PHP and PostgreSQL E-Commerce: From Novice to Professional!* The explosive growth of retail over the Internet is encouraging more small- to medium-sized businesses to consider the benefits of setting up e-commerce web sites. Although there are great and obvious advantages to online retail, there are also many hidden pitfalls that you might encounter when developing a retail web site. This book provides you with a practical, step-by-step guide to setting up an e-commerce web site. Guiding you through every step of the design and build process, this book will have you building high quality, extendable e-commerce web sites quickly and easily.

Over the course of the book, you will develop all the skills necessary to get your business up on the web and available to a worldwide audience. We present this information in a book-long case study, the complexity of which develops as your knowledge increases through the book.

The case study is presented in three phases. The first phase focuses on getting the site up and running as quickly as possible and at a low cost. Although not yet full-featured, at the conclusion of this phase, your site will be capable of accepting PayPal payments, enabling you to begin generating revenue immediately.

The second phase concentrates on increasing revenue by improving the shopping experience. In this phase, you'll learn how to proactively encourage customers to buy more by implementing product recommendations. We'll also begin laying the groundwork for handling credit card transactions by developing and integrating custom shopping cart functionality.

In the third phase, we'll show you how to increase your profit margins by reducing costs through automating and streamlining order processing and administration and by handling credit card transactions yourself. You also learn how to integrate external functionality through Web Services and how to improve your customer's shopping experience by adding product reviews functionality.

Who This Book Is For

Beginning PHP and PostgreSQL E-Commerce: From Novice to Professional is aimed at developers looking for a tutorial approach to building a full e-commerce web site from design to deployment. However, it's assumed that you have some knowledge of building web sites with PHP and PostgreSQL. *Beginning PHP and PostgreSQL 8: From Novice to Professional* (Apress, 2006), authored by W. Jason Gilmore and Robert Treat, can provide this foundation knowledge for you.

This book will also prove valuable for PHP 4 developers who learn best by example and want to experience PHP 5 development techniques first hand.

How This Book Is Structured

This book is divided into three parts consisting of 17 chapters and 2 appendixes. We cover a wide variety of topics, showing you how to

- Build an online product catalog that can be browsed and searched
- Implement the catalog administration pages that allow adding, modifying, and removing products, categories, and departments
- Create your own shopping basket and checkout in PHP
- Increase sales by implementing product recommendations and product reviews
- Handle payments using PayPal, DataCash, and Authorize.net
- Implement a customer accounts system
- Integrate external functionality through Web Services

The following brief roadmap highlights how we'll take you from novice to professional regarding each of the topics in the previous list.

Part 1: Phase I of Development

Chapter 1: Starting an E-Commerce Site

In this chapter, we'll introduce some of the principles of e-commerce in the real world. You see the importance of focusing on short-term revenue and keeping risks down. We look at the three basic ways in which an e-commerce site can make money. We then apply those principles to a three-phase plan that provides a deliverable, usable site at each phase of this book.

Chapter 2: Laying Out the Foundations

The first chapter offered an overview of e-commerce in the real world. Now that you've decided to develop a web site, we start to look in more detail at laying down the foundations for its future. We'll talk about what technologies and tools you'll use, and even more importantly, how you'll use them.

Chapter 3: Creating the Product Catalog: Part I

After learning about the three-tier architecture and implementing a bit of your web site's main page, it's time to continue your work by starting to create the HatShop product catalog. Because the product catalog is composed of many components, you'll create it over two chapters. In Chapter 3, you'll create the first database table and implement the data access code. By the end of this chapter, you'll have something dynamically generated on your web page.

Chapter 4: Creating the Product Catalog: Part II

The fun isn't over yet! In the previous chapter, you created a selectable list of departments for HatShop. However, a product catalog is much more than a list of departments. In Chapter 4, you'll add the rest of the product catalog features.

Chapter 5: Searching the Catalog

In the preceding two chapters, you will have implemented a functional product catalog for HatShop. However, the site still lacks the all-important search feature. The goal in this chapter is to allow the visitor to search the site for products by entering one or more keywords. You'll learn how to implement search results rankings and how to browse through the search results page by page. You'll see how easy it is to add new functionality to a working site by integrating the new components into the existing architecture.

Chapter 6: Receiving Payments Using PayPal

Let's make some money! Your e-commerce web site needs a way to receive payments from customers. The preferred solution for established companies is to open a merchant account, but many small businesses choose to start with a solution that's simpler to implement, where they don't have to process credit card or payment information themselves.

A number of companies and web sites exist to help individuals or small businesses that don't have the resources to process credit card and wire transactions. These companies can be used to process the payment between companies and their customers. In this chapter, we'll demonstrate some of the functionality provided by one such company, PayPal, as we use it on the HatShop web site in the first two stages of development.

Chapter 7: Catalog Administration

The final detail to take care of before launching a web site is to create its administrative interface. Although this is a part visitors will never see, it's still key to delivering a quality web site to your client.

Part 2: Phase II of Development

Chapter 8: The Shopping Cart

With this chapter, you enter the second phase of development, where you start improving and adding new features to the already existing, fully functional e-commerce site. In Chapter 8, you'll implement the custom shopping cart, which stores its data in the local database. This provides you with more flexibility than the PayPal shopping basket, over which you have no control and which you can't save into your database for further processing and analysis.

Chapter 9: Dealing with Customer Orders

The good news is that the brand new shopping cart implemented in Chapter 8 looks good and is fully functional. The bad news is that it doesn't allow the visitor to actually place an order, making it totally useless in the context of a production system. As you have probably already guessed, you'll deal with that problem in this chapter, in two separate stages. In the first part of the chapter, you'll implement the client-side part of the order-placing mechanism. In the second part of the chapter, you'll implement a simple orders administration page where the site administrator can view and handle pending orders.

Chapter 10: Product Recommendations

One of the best advantages of an Internet store compared to a brick-and-mortar store is the capability to customize the web site for each visitor based on his or her preferences, or based on data gathered from other visitors with similar preferences. If your web site knows how to suggest additional products to your visitor in a clever way, he or she might end up buying more than initially planned. In Chapter 10, you'll learn how to implement a dynamic product recommendation system.

Part 3: Phase III of Development

Chapter 11: Managing Customer Details

In the first two stages of development, you've built a basic (but functional) site and have hooked it into PayPal for taking payments and confirming orders. In the third section of the book, you'll take things a little further. By cutting out PayPal from the ordering process, you can gain better control as well as reduce overhead. This isn't as complicated as you might think, but you must be careful to do things right. Chapter 11 lays the groundwork by implementing a customer account system, as well as looking into the security aspects of exchanging and storing customer and credit card details.

Chapter 12: Storing Customer Orders

In this chapter, you'll make the modifications required for customers to place orders that are associated with their user profiles. The main modification here is that the customer associated with an order will be identified by a new piece of information in the orders table, and much of the rest of the modifications will be made to use this information.

Also in this chapter, you'll take a look at dealing with another common feature of e-commerce sites: tax and shipping charges. Many options are available for implementing this functionality, but we'll just examine a simple way of doing things and lay the groundwork for your own further development.

Chapter 13: Implementing the Order Pipeline: Part I

The HatShop e-commerce application is shaping up nicely. You've added customer account functionality, and you're keeping track of customer addresses and credit card information, which is stored in a secure way. However, you're not currently using this information—you're delegating responsibility for this to PayPal. In this and the next chapter, you'll build your own

order-processing pipeline that deals with authorizing credit cards, stock checking, shipping, providing email notifications, and so on. We'll leave the credit card processing specifics until Chapter 15, but we'll show you where this process fits in before then.

Chapter 14: Implementing the Order Pipeline: Part II

In this chapter, you'll add the required pipeline sections so that you can process orders from start to finish, although you won't be adding full credit card transaction functionality until the next chapter. We'll also look at the web administration of orders by modifying the order admin pages added earlier in the book to take into account the new order-processing system.

Chapter 15: Credit Card Transactions

The last thing you need to do before launching the e-commerce site is enable credit card processing. In this chapter, we'll look at how you can build this into the pipeline you created in Chapters 13 and 14. You'll see how to use two popular credit card gateways to do this: Data-Cash and Authorize.net. By the end of this chapter, HatShop will be a fully functioning, secure, and usable e-commerce application.

Chapter 16: Product Reviews

At this point, you have a complete and functional e-commerce web site. However, this doesn't stop you from adding even more features to it, making it more useful and pleasant for visitors. By adding a product reviews system to your web site, you increase the chances that visitors will get back to your site, either to write a review for a product they bought or to see what other people think about that product.

Chapter 17: Connecting to Web Services

In the dynamic world of the Internet, sometimes it isn't enough to just have an important web presence; you also need to interact with functionality provided by third parties to achieve your goals. So far in this book, you already saw how to integrate external functionality to process payments from your customers. In Chapter 17, you'll learn how to use Amazon.com functionality from and through Web Services. A *Web Service* is exposed through a web interface using standard Internet protocols such as HTTP. The messages exchanged by the client and the server are encoded using an XML-based protocol named SOAP (Simple Object Access Protocol), or by using REST (Representational State Transfer). These messages are sent over HTTP. You'll learn more about these technologies in this chapter.

Prerequisites

The code in this book has been built and tested with PHP 5 and PostgreSQL 8. It will not work with PHP 4 or older versions. You'll find detailed information about the required software in Appendix A.

Downloading the Code

The code for this book can be downloaded in zip file format from the Source Code/Downloads section of the Apress web site (<http://www.apress.com>). You also can find the code, errata, and other resources related to the book on Cristian's web site at <http://www.cristiandarie.ro/php-postgresql-ecommerce/>, or on Emilian's web site at <http://www.emilianbalanescu.ro/beginning-php-postgresql-ecommerce/>.

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