



Community Experience Distilled

Web Application Development with Yii and PHP

Second Edition

Learn the Yii application development framework by taking a step-by-step approach to building a Web-based project task tracking system from conception through production deployment

Jeffrey Winesett

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BIRMINGHAM - MUMBAI

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I would like to thank Qiang Xue for creating this amazing framework, and the entire Yii framework development team who continually improve and maintain it. I thank all of the technical reviewers, editors, and staff at Packt Publishing for their fantastic contributions, suggestions, and improvements.

I would also like to thank my family, who have provided encouragement and unconditional support, and to my many colleagues over the years for providing invaluable opportunities for me to explore new technologies, expand my knowledge, and shape my career.

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To my wife and son, I wish them the best.

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I would like to thank my beloved wife Mila for letting me do open source work in my free time, and not arguing too much when I stay late for doing work I don't get paid for.

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Thanks to my family for being patient with me as I took up yet another project and spent less time with them.

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Preface

This book is a step-by-step tutorial to developing a real-world application using the Yii web application development framework. The book attempts to mirror the environment of a software development team that is being tasked with building an online application, touching on each aspect of the software development lifecycle, as you build a project task management application from its conception to its production deployment.

After a brief, general introduction to the Yii framework, and going through the iconic "Hello World" example, the remaining chapters break down in the same way as software development iterations do in real-world projects. We begin with creating a working application with a valid, tested connection to a database.

We then move on to defining our main database entities and domain object model, and become familiar with Yii's **Object Relational Mapping (ORM)** layer *Active Record*. We learn how to lean on Yii's code generation tools to automatically build our create/read/update/delete (CRUD) functionality against our newly created models. We also focus on how Yii's form validation and submission model works. By the end of *Chapter 5, Managing Issues*, you will have a working application that allows you to manage the projects and issues (tasks) within those projects.

We then turn to the topic of user management. We learn about the built-in authentication model within Yii to assist with the application login and logout functionality. We take a deep dive into the authorization model, first taking advantage of Yii's simple access control model and then implementing the more sophisticated, **role-based access control (RBAC)** framework that Yii provides.

By the end of *Chapter 7, User Access Control*, all of the basics of a task-management application are in place. The next several chapters begin to focus on additional user features, user experience, and design. We add user comment functionality, introducing a reusable, content portlet architecture approach in the process. We add in an RSS web feed and demonstrate how easy it is to integrate other third-party tools and frameworks within a Yii application. We take advantage of Yii's theming structure to help streamline and design the application, and then introduce Yii's internationalization (I18N) features so that the application can be adapted to various languages and regions without engineering changes.

In the final chapter, we turn our focus to preparing the application for production deployment. We introduce ways to optimize performance and improve security, to prepare the application for a production environment.

What this book covers

Chapter 1, Meet Yii, provides you with a brief history of Yii, an introduction to the **Model View Controller (MVC)** application architecture, and you are introduced to the typical request life cycle as it makes its way from the end user through the application, and finally as a response back to the end user.

Chapter 2, Getting Started, is dedicated to downloading and installing the framework, creating a new Yii application shell, and introducing Gii, Yii's powerful and flexible code generation tool.

Chapter 3, The TrackStar Application, is where the TrackStar application is introduced. This is an online, project-management and issue-tracking application that you will be building throughout the remaining chapters. Here you learn how to connect a Yii application to an underlying database. You also learn how to run the interactive shell from the command line. The last part of this chapter is focused on providing an overview of unit and functional testing within a Yii application, and provides a concrete example of writing a unit test in Yii.

Chapter 4, Project CRUD, helps you to start interacting with the database, to begin adding features to the database-driven Yii application TrackStar. You learn how to use Yii Migrations for database change management, and we use the Gii tool to create model classes and also to build out create, read, update, and delete (CRUD) functionality using the model class. The reader is also introduced to configuring and performing form field validation in this chapter.

Chapter 5, Managing Issues, explains how additional related database tables are added to the TrackStar application, and how the reader is introduced to the relational Active Record in Yii. This chapter also covers using controller filters to tap into the application life cycle in order to provide pre-action and post-action processing. The official Yii extension library Zii is introduced, and we use Zii widgets to enhance the TrackStar application.

Chapter 6, User Management and Authentication, explains how to authenticate users in a Yii. While adding the ability to manage users in the TrackStar application, the reader learns to take advantage of *Behaviors* in Yii, which provide an extremely flexible approach to sharing common code and functionality across your Yii components. This chapter also covers the Yii authentication model in detail.

Chapter 7, User Access Control, is dedicated to Yii's authorization model. First we cover the simple access control features, which allow you to easily configure access rules for the controller actions that are based on several parameters. Then we look at how role-based access control (RBAC) is implemented in Yii, which allows a much more robust authorization model for complete access control based on hierarchical model of roles, operations, and tasks. Implementing role-based access control into the TrackStar application also introduced the reader to using the console command in Yii.

Chapter 8, Adding User Comments, helps demonstrate how to implement the feature for allowing users to leave comments on projects and issues in the TrackStar application; we introduce how to configure and use a statistical query relation, how to create highly reusable user interface components called *Widgets*, and how to define and use named scopes in Yii.

Chapter 9, Adding an RSS Web Feed, demonstrates how easy it is to use other third-party frameworks and libraries in Yii applications, and shows you how to use the URL management features of Yii to customize your applications' URL format and structure.

Chapter 10, Making It Look Good, helps you learn more about the views in Yii, and how to use layouts to manage markup and content shared across your application pages. *Theming* is also introduced, as we show how easy it is to give a Yii application a completely new look without having to alter any of the underlying engineering. We then take a look at internationalization (i18n) and localization (l10n) in Yii as language translation is added to our TrackStar application.

Chapter 11, Using Yii Modules, explains how to add administrative features to the TrackStar site by using a Yii module. Modules provide a very flexible approach to developing and managing the larger, self-contained sections of your application.

Chapter 12, Production Readiness, helps us prepare our TrackStar application for production. You learn about Yii's logging framework, caching techniques, and error-handling methods to help get your Yii applications production-ready.

What you need for this book

The following software are required for this book:

- Yii framework Version 1.1.12
- PHP 5.1 or above (5.3 or 5.4 recommended)
- MySQL 5.1 or above
- A web server capable of running PHP 5.1; the examples provided in the book were built and tested with the Apache HTTP server, on which Yii has been thoroughly tested within both Windows and Linux environments
- Zend Framework Version 1.1.12 or above (only needed for *Chapter 9, Adding an RSS Web Feed*, and the downloading and configuration of this library, which is covered in this chapter)

Who this book is for

If you are a PHP programmer with a knowledge of object-oriented programming and want to rapidly develop modern, sophisticated web applications, then this book is for you. No prior knowledge of Yii is required to read this book.

Conventions

In this book, you will find a number of styles of text that distinguish between different kinds of information. Here are some examples of these styles, and an explanation of their meaning.

Code words in text are shown as follows: "We can include other contexts through the use of the `include` directive."

A block of code is set as follows:

```
'components'=>array(  
  'db'=>array(  
    'connectionString' => 'mysql:host=localhost;dbname=trackstar',  
    'emulatePrepare' => true,  
    'username' => '[YOUR-USERNAME]',  
    'password' => '[YOUR-PASSWORD]',  
    'charset' => 'utf8',  
  ),  
)
```


When we wish to draw your attention to a particular part of a code block, the relevant lines or items are set in bold:


```
'components'=>array(  
  'db'=>array(  
    'connectionString' => 'mysql:host=localhost;dbname=trackstar',  
    'emulatePrepare' => true,  
    'username' => '[YOUR-USERNAME]',  
    'password' => '[YOUR-PASSWORD]',  
    'charset' => 'utf8',  
  ),  
)
```

Any command-line input or output is written as follows:

```
$ yiic migrate create <name>  
%cd /WebRoot/trackstar/protected/tests
```

New terms and **important words** are shown in bold. Words that you see on the screen, in menus or dialog boxes for example, appear in the text like this: "clicking the **Next** button moves you to the next screen".

 Warnings or important notes appear in a box like this.

 Tips and tricks appear like this.

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1

Meet Yii

Web development frameworks help jump-start your application by immediately delivering the core foundation and plumbing needed to quickly turn your ideas scribbled on the whiteboard into functional, production-ready code. With all of the common features expected from web applications today, and available framework options that meet these expectations, there is little reason to code your next web application from scratch. A modern, flexible, and extensible framework is almost as essential a tool to today's web developer as the programming language itself. And when the two are particularly complementary, the results are an extremely powerful toolkit – Java and Spring, Ruby and Rails, C# and .NET, and PHP and Yii.

Yii is the brainchild of founder Qiang Xue, who started the development of this open source framework on January 1, 2008. Qiang had previously developed and maintained the PRADO framework for many years prior to starting this. The years of experience and user feedback cultivated from the PRADO project solidified the need for a much easier, more extensible, and more efficient PHP5-based framework, to meet the ever-growing needs of application developers. The initial alpha version of Yii was officially released to meet these needs in October of 2008. Its extremely impressive performance metrics when compared to other PHP-based frameworks immediately drew very positive attention. On December 3, 2008, Yii 1.0 was officially released, and as of Oct 1, 2012, the latest production-ready version is up to 1.1.12. It has a growing development team and continues to gain in popularity among PHP developers everyday.

The name **Yii** is an acronym for **Yes, it is**, and is pronounced as *Yee* or (*ji:*). Yii is a high-performance, component-based, web application framework written in PHP5. The name is also representative of the adjectives most used to describe it, such as easy, efficient, and extensible. Let's take a quick look at each of these characteristics of Yii, turn by turn.

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