

# Comparison Study Between Performance of Laravel and Other PHP Frameworks

Pooja Rajendra Chavan<sup>1\*</sup>, Shravani Pawar<sup>2</sup>

<sup>1</sup>Student, Department of MCA, Bharti Vidyapeeth Institute of Management and Information Technology, Navi Mumbai, India

<sup>2</sup>Professor, Department of MCA, Bharti Vidyapeeth Institute of Management and Information Technology, Navi Mumbai, India

**Abstract:** This study was done to judge and compare the performance of 4 popular PHP frameworks Symfony, CodeIgniter and Phalcon, along with Laravel. The choice of creating this study was supported by the fact that there's an absence of comparison tests between the popular PHP frameworks. Visiting the official websites of those frameworks, the primary thing is to note is that the bulk of these slogans contain quality attributes like speed and high performance. As a developer searching for performance in your next project, choosing the proper PHP framework by these slogans isn't that easy. With the standard framework design methods of web design, leading to large limitations, time consumption, and other issues, for such problems, this study presents the planning and implementation of internet-supported Laravel framework. Laravel makes the event process is standardized, processing some non-business logic relationship automatically. This study designs and implements a straightforward Laravel model, which achieved automated processing for a part of the planning. The experiments and simulation proved that web design supported Laravel framework, has scalability and robustness, which improve the developing efficiency.

**Keywords:** PHP, framework, Symfony, Laravel, CodeIgniter, Phalcon, performance, comparison, model, scalability.

## 1. Introduction

**PHP:** Hypertext Pre-processor is a well-known scripting language often related to web development while it's other areas of usages. In keeping with w3techs.com, PHP is the most typically used scripting language on the web, with 82% coverage. Many frameworks that supported PHP popped up during the last decade. Frameworks like CodeIgniter, Symfony, Phalcon and Laravel are widely used and consistent with sitepoint.com. They're four of the foremost promising frameworks in 2021. the primary thing to acknowledge when visiting the web pages of those frameworks is that the promises, which the people behind will guarantee you. When visiting Laravel's website, the primary thing you see are slogans like beautiful code, rapidity and speed. Phalcon's team claims that their framework is that the fastest. Symfony's website title says, "High-performance PHP framework for web development". CodeIgniter's team states that their framework is "powerful with

a really small print". A developer planning to develop a project where PHP is required because the development language and high performance is one in every of the highly prioritized requirements within the requirements specification. The solution to these questions this study has been conducted during which five functionally equivalent blogging web applications are developed and subjected to an experiment within which the performance of every of the mentioned frameworks is measured and evaluated. The primary web applications are developed in plain PHP using the MVC design pattern. The other four are developed within the PHP frameworks Laravel, Phalcon, Symfony and CodeIgniter. After implementing the applications, performance metrics are measured on of these versions of the net application. These measurements will consist of,

- Execution time of CRUD-functionality,
- Memory usage for each of them,
- Tracing the number of the called functions in each CRUD-action.

The results from the experiments are analysed and interpreted so as to become the premise of the choices and conclusions of this study. With the extensive application of the web technology, many companies have urgent requirements to make their own web business system quickly and effectively. However, a high quality application depends on the support of well-designed system structure, a way to correctly apply the core technology to style and build a stable, scalable and reusable web application system structure is that the challenge we face.

Generally, the standard framework design method is just too simple, leading to large limitations, time-consuming and other issues, for such problems, this paper presents the planning and implementation method of an internet supported Laravel framework, Laravel makes the event process is standardized, processing some non-business logic relationship automatically, allowing programmers to target implementation of business logic. This paper designs and implements an easy Laravel model, which achieved automated processing for a part of the planning. The experimental and stimulation proved, web design supported Laravel framework, has scalability and robustness, to

\*Corresponding author: [poojachauhan301@gmail.com](mailto:poojachauhan301@gmail.com)

improve the developing efficiency.

## 2. Performance Analysis

### A. *Symfony*

Symfony is one in all the first PHP frameworks. Its creator Fabien Potencier released the primary version in 2005. At the time of writing the report the stable version available for downloading is 5.3.2 and is made upon or requires PHP version 5.4 or higher. an inventory of the foremost significant features that the framework characterizes:

- The ability to put in the framework employ ing a standalone tool.
- Command tool for generating and scaffolding the implementat ion.
- Separations of Concerns, which suggests that implementation files are organized in sections within the file structure.
- Built-in Object Relational Mapping (ORM) implementation.
- The framework embraces the usage of the MVC-design pattern.
- Built-in convention for view routing.
- Built-in implementations for sanitization, validation and security vulnerability protection.
- Components for user authentication and authorization.

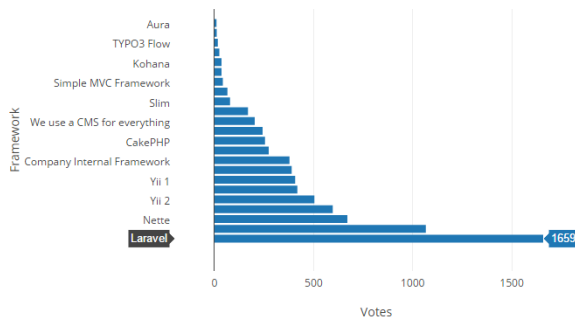


Fig. 1. PHP framework popularity at work- Sitepoint

### B. *CodeIgniter*

CodeIgniter is additionally one in every of the first PHP frameworks. the primary version was released within the beginning of 2006. the person behind CodeIgniter is Rick Ellis, rock musician turned programmer. the rationale for developing CodeIgniter is because Rick Ellis was disappointed therewith time's available PHP frameworks. He was particularly disappointed with issues like terrible documentation, high learning curve, complicated deployment and also the usage of terminal commands. there's no installer available for installing the stable version of CodeIgniter, which is 4.1.1 at the time of this study. A compressed package containing the file structure of the framework is offered and it's the sole thing a developer would wish to start out using the framework. MVC-pattern and C like Object orientation are recognizable techniques within the framework when 4 using it at the primary time. However, one would miss the power to get or scaffold code using built-in tools within the framework.

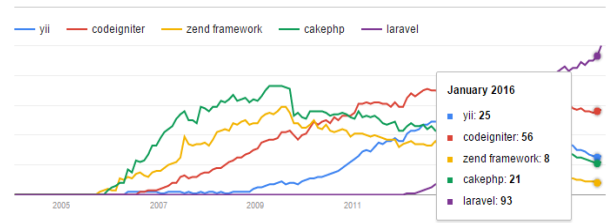


Fig. 2. Laravel vs. CodeIgniter vs. Yii vs. Cakephp vs. Zend Comparison Chart

### C. *Phalcon*

Phalcon is one among the latest PHP frameworks that are released thus far. the primary release was in 2012 and now, later the recent and stable version is Phalcon 4.0.6.the person behind Phalcon is Andres Gutierrez. What distinguishes Phalcon from the opposite frameworks is that the undeniable fact that Phalcon is written as a PHP extension within the C language. The extension is loaded into memory once and its API is exposed to the developer. Regarding the characterizing features within the framework, it's certain that Phalcon shares similarities with both Symfony and Laravel in terms of how the framework is made and structured.

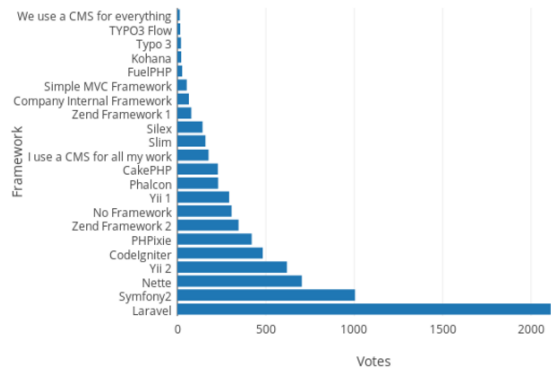


Fig. 3. PHP framework popularity in personal projects- Sitepoint

### D. *Laravel*

Laravel was first released in June 9, 2011 with its version 1 beta. Now eight years later, the newest stable version is version 8.16.1 at the time of this study. Laravel's creator Taylor Otwell, the rationale for creation the framework was the shortage of some essential functionality, like user authentication within the CodeIgniter framework. Note that there are many similarities between Laravel and Symfony. In fact, all the characterizing way forward for Symfony listed in 1.2.1 may apply to Laravel furthermore.

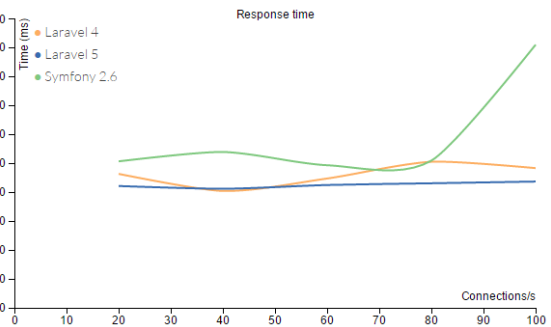


Fig. 4. Performance on Request & Response

### 3. Five Versions of the Web Application

As mentioned earlier, five functionally equivalent blog web applications had to be developed. The primary may be a plain PHP version, and therefore the other four are developed using the frameworks Laravel, Symfony, CodeIgniter and Phalcon. Each version is described in additional detail below.

#### A. *Laravel version*

When the primary blog application has been developed, the implementation will be used as a thought source so as to develop the opposite framework versions. This is often the approach utilized in this study. The Laravel installer tool has been used to generate an empty Laravel project. To form the blog entry model, a table representing that entry has been created within the MySQL. Out of that table, PHP model and RESTful controller classes are generated using the scaffolding tools provided by the framework. The views are manually created and to write down them, the template engine provided by the framework was used. And exactly because it has been exhausted the plain PHP version, there are implementations invoked for handling the input validation, sanitization and security.

#### B. *Symfony version*

An empty Symfony project has been generated using the installer tool downloaded from the framework's website. To begin working in Symfony, a bundle inside the newly created project had to be created. Once that's done, the configuration file was modified, by adding database connectivity parameters to that. And to make our blog entry implementation, a built-in tool in Symfony was used to scaffold and generate the model, controller and views. A pair of code lines are added to handle the input validation & sanitization. CSRF protection was enabled by default within the framework.

#### C. *CodeIgniter version*

CodeIgniter is that the only framework among the frameworks employed in this experiment that doesn't have an installer. To use it, the full framework bundle has got to be installed. Once the configuration file is about up, the models, views and controllers must be created manually. The convention is to form a PHP file and place it within the controller's folder and also the same is for views and models. Creating models in CodeIgniter doesn't work the identical as Laravel or Symfony. Models require a touch little bit of coding to induce them up and dealing. Input validation and sanitization were easy to line up and therefore the CSRF protection additionally.

#### D. *Phalcon version*

As in Laravel and Symfony, Phalcon comes with an installer to make an empty project. There's also an external generator tool provided by the core team, by which the code generation is created easy for the developer. A model representing the blog entry and a RESTful controller taking care of the request actions and examine, were easily generated. The blog entry model was modified to handle the input validation and sanitization. The views containing submission forms were also modified to

enable the CSRF protection.

### 4. Conclusion

With the standard framework design methods to style web, leading to large limitations, time-consuming and other issues, this study presents the planning and implementation method of an internet supported Laravel framework. Laravel makes the event process standardized, processing some non-business logic relationships automatically. This paper designs and implements a straightforward Laravel model, which achieved automated processing for a part of the look. The experimental and simulation proved, web design supported Laravel framework, has scalability and robust scalability, so on improve the developing efficiency.

The result analysis for the Laravel and Phalcon shows that the differences between them are relatively small to Laravel's advantage. The Laravel is just a dozen milliseconds faster and consumes some bytes less memory than Phalcon. The results also show that the Laravel application has relatively shorter stack trace in its function calls compared to Phalcon. If the Laravel PHP application was larger or had a stack trace tree of the identical size because the Phalcon version, it might mean that the Laravel wouldn't be performing better than the Phalcon. That's because the expansion of the stack trace within the Laravel application would have caused the next execution time and memory consumption because it has been proven in Laravel is usually fitted to smaller projects whether or not there are not any obvious reasons to not use Phalcon, but Phalcon would be the popular choice when developing larger projects. The result analysis also showed that Phalcon is that the only light weight framework among all the tested frameworks during this study. Followed by CodeIgniter, which within the terms of performance has showed mediocre values during this study. The remaining framework Symfony are the heavy weight frameworks performing best both in terms of execution time and memory usage. This can be because of the actual fact that these frameworks have deep stack trace trees in their implementations.

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