Comparative analysis between Framework Yii and Laravel

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Abstract

Technological tools play an important role in the development of applications, within the several tools there is the Framework that is an essential part for web development. Currently there is a great diversity of PHP frameworks, programmers have problems when choosing the most relevant framework according to their projects. For this reason, the objective of this work is to make a comparison between two PHP frameworks, Yii and Laravel. This comparison was made based on a review of available documentation from review articles. The results show that both Yii and Laravel have their own features and attributes that make them better performing frameworks, excellent for developing large systems and well-developed PHP frameworks, both have their advantages and disadvantages. Yii offers faster performance and ease of use, while Laravel addresses issues and localizes them at a faster pace. The choice of framework type will depend on the type of project and the developer.

Resumen

Las herramientas tecnológicas desempeñan un papel importante en el desarrollo de las aplicaciones, dentro de las diversas herramientes existe el Framework que es una parte esencial para desarrollo web. En la actualidad hay gran diversidad de Framework PHP, por lo que los programadores tienen problemas al momento de elegir el framework más relevante de acuerdo a sus proyectos. Por esta razón el objetivo de este trabajo es hacer una comparativa entre dos framework PHP: Yii y Laravel. Se realizó esta comparativa basada en una revisión documental disponible en artículos científicos. Los resultados muestran que tanto Yii y laravel tienen sus propias características y atributos que los convierte en framework con mejor rendimiento, excelentes para desarrollar sistemas extensos y están bien desarrollados en los framework PHP, ambos tienen sus ventajas y desventajas. Yii ofrece rendimiento más rápido y fácil de usar, mientras Laravel aborda los problemas y los localiza a un ritmo más rápido. La elección del tipo de Framework dependerá del tipo de proyecto y del desarrollador.

1. INTRODUCTION

Although there are different technological tools available for developing web applications, frameworks are very popular and widely used for web development, among them the PHP framework (Kyriakakis *et al.*, 2019; Sunardi, 2019). The PHP framework, is a basic programming language that has been developed and made easy to use so that a website can be completed in a relatively short time (Purbo, 2021). It arises from the need to quickly develop large applications by promoting code reuse, testing and changes in an application (Laaziri, 2019). There are many advantages to use this language. For example, its performance, open source, scalability, portability, flexibility, it is easy to use and easy to learn (Latif and Kusumasari, 2017; Laaziri *et al.*, 2019). According to Prokofyeva and Boltunova (2017) another advantage is that it increases programming productivity because writing a piece of code that usually takes hours and occupies hundreds of lines of code can be done in minutes with the help of the framework's built-in functions. It also has a great security advantage as its users become long-term testers. If a user encounters a security issue, he can report it on the framework's developer website so that the team can fix it. On the other hand, often the most popular frameworks are free and since they help the developer to write code faster, the final cost will be lower. Finally, the framework usually comes with a support team, so users can get answers quickly. Currently, there are many

PHP Frameworks available and easy to use for the development process. Among the most popular are: Phalcon, Cake PHP, CodeIgniter Laravel, Symfony, Yii and Zend Framework (Latif and Kusumasari, 2017; Solanki et al., 2017; Prokofyeva and Boltunova, 2017; Haris and Hasim, 2019; Saroni and Mulynati, 2020).

These Frameworks have certain similarities in their functionality, however, each of them individually has special features that distinguish them from the others. Therefore, when choosing the right template, it is necessary to take into account not only the technical aspects and their possibilities, but also the subject of the project and the skills of the programmer. Their choice can have a significant influence on the success of a project (Abutaleb et al., 2021; Garbarz and Plechawska-Wójcik, 2022).

This work aims to make a comparison between two frameworks: Yii and Laravel, to serve the reader or programmer as an orientation in the specific implementation that must be taken into account to make their choice.

2. DEVELOPMENT

Yii is a modern component-based, high-performance PHP framework for developing large-scale web applications of any level of complexity (Warsito et al., 2014). Yii 2 is based on another framework - PRADO, written in ASP.NET and later ported to PHP. Shortly after building the new architecture, the PRADO framework was renamed Yii. The name of the framework is an abbreviation for the word "Yes, It Is!". The progenitor of this framework is the Chinese developer Qiang Xue (Qodirov et al., 2019).

According to the official website of the Yii Framework (www.yiiframework.com) this framework is generic, that is, it can be used to develop all kinds of web applications in PHP, due to its component-based architecture and its sophisticated compatibility with cache, it is appropriate for the development of wide-ranging applications, such as web pages, forums, content management systems, electronic commerce projects, web services compatible with the architect, among others.

Yii is a free software with a BSD license, based on Object Oriented Programming, implementing the Model-View-Controller (MVC) design pattern, widely adopted in web programming. Following this pattern ensures a clear separation of business logic and presentation. With MVC, developers can rely on widely accepted design patterns as solutions to recurring problems (Mahmood et al., 2019; Thakur and Pandey, 2019). On the other hand, Yii also introduces a front controller, called Application, which encapsulates the execution context for processing a request.

The application collects some information about the user's request and sends it to the corresponding controller for handling (Warsito et al., 2014).

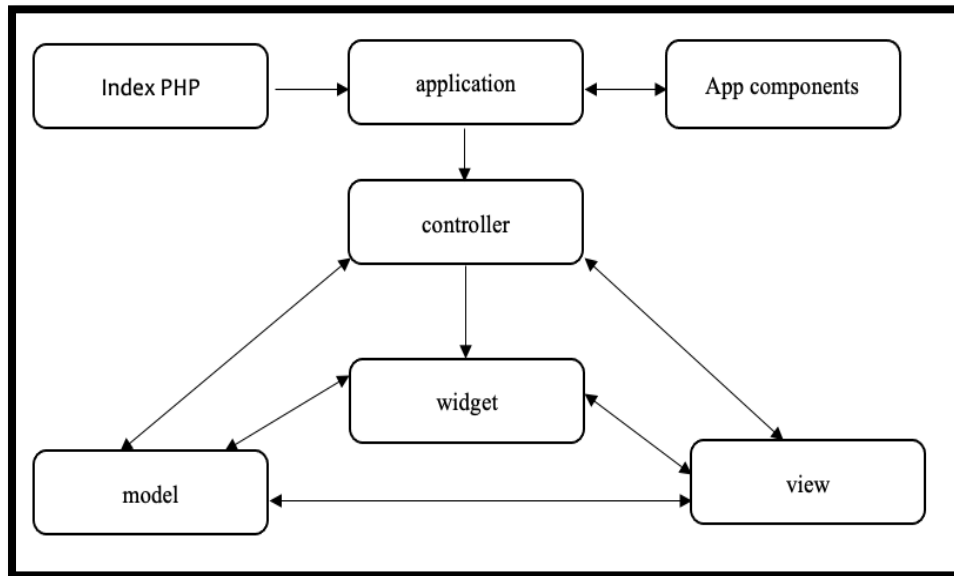The next diagram shows the static structure of a Yii application.

Figure 1. Static structure of the Yii application

Yii is the only framework among all the most popular ones for PHP programming that meets all the key features of modern websites and web application development, according to the comparison website "PHP Frameworks".

Different authors describe the advantages and disadvantages of this framework (*Manger et al.*, 2010; Saroni and Muylanti, 2010 Keck, 2014; Warsito *et al.*, 2014; Valarezo and Guarda, 2018; Qodirov *et al.*, 2019).

Advantages

- Yii is not an indicator of a single person, the framework is supported by a strong core development team, as well as a large community of professionals who constantly contribute to the development of Yii.
- Yii makes it easy to quickly prototype a web application. Refers to redundant array of independent disks development tools.
- Built-in mechanism for creating presentation widgets, for example, for placing various blocks on the site: recent posts, categories, navigation, ad units, etc.
- The i18n application component enables automatic translation of web application messages.
- Built-in support for automatic form validation and error reporting based on data from web application models.
- Active logging mechanism to build relational database query processing.
- Excellent caching.
- Ability to perform caching optimally
- Caching is done to make a dynamic website look like a static website, so that the website access speed is faster.
- It is much faster because it extensively uses lazy loading technique, for better performance Yii loads the libraries only when it needs them. This avoids loading unnecessary resources that slow down the application.
- The official Yii documentation can be found in different languages, including Spanish.

- Jquery and some AJAX plugins are already integrated in Yii.
- Helps connect models to the database, improving workflow, efficiency, and overall design capabilities.
- Frees you up to build a detail-rich data structure that will ultimately make the end user more engaged.

Disadvantages

- Weak ecosystem around the framework among the segment of English-speaking developers. The community is to spread out in different places: various forums with little activity, stack overflow, etc.
- Although the framework allows to do simple code, but it is far from elegant. If you compare its syntax with the Laravel framework, then it is inferior.
- Yii lags behind the language, standards and other frameworks. New updates with really useful features come out infrequently.
- The backend and frontend parts of Yii 2 are too connected. The framework suggests the use of the jQuery and Bootstrap library, which are built into the core of the framework by default. This issue is expected to be fixed in the new version of the Yii 3 framework, making its components less connected.
- Inflexible routing system: there is no way to group routes.
- The framework is quite old school. Created in 2006, Yii is over 12 years old. Along with the times and the development of programming languages, it is feared that Yii may not be able to keep up with these developments.
- Depends on static methods.

Laravel Framework

Laravel is a PHP programming language framework. It was first released on June 9, 2011, according to the creator of Laravel, Taylor Otwell (Salonki *et al.,* 2017). Laravel is a framework that facilitates programmers to design the intended programs, facilitates developers by saving time and thinking for planning web applications from scratch (Bagwan and Ghule, 2019; Muchtar and Munir, 2019; Suherman and Nainggolan, 2021). Laravel has many modern features that really help developers in creating open source and no-cost applications (Tahir *et al.*, 2019). Its expressive syntax and modern features are appealing to developers who want to create robust applications. Laravel includes Eloquent, which is an efficient object-relational mapper (ORM) and the developer can define entities, map them to related database tables and use PHP methods (Subecz, 2021). On the other hand, Laravel provides a number of different packages and APIs to integrate within the application and make the job easier for developers.

All Laravel projects run under the root directory of the project structure. Laravel project can be easily installed through composer commands or by installing zip for the project. Several packages are predefined and can be easily available on the web for use (Bagwan and Ghule, 2019). This Framework uses the MVC design pattern designed to increase the quality of the software by reducing the development and repair costs, also it can increase the productivity of a job (Laaziri *et al.*, 2019).

Suherman and Nainggolan, (2021) mention that Laravel provides updated tools for interacting with the database called migration. With migration, developers can easily modify a database independently because the implementation of the database schema is represented in a class.

Different authors describe the advantages and disadvantages of this framework (Salonki *et al.*, 2017; Bagwan and Ghule, Latif *et al.*, 2018; 2019; Tahir *et al.*, 2019; Saroni *et al.*,2020)

Advantages

-   Support Sheet Template: This is a template engine built in features for common web application tasks like authentication, routing, database, management, sending emails.
-   Support rapid application development.
-   Supports unit tests that builds in unit testing features that can be run from the craftsman command line.
-   Faster performance.
-   More stable data reload.
-   Has data security.
-   Management of migrations to create table schemas in the database.
-   It makes it easy for developers to save time and helps reduce thinking and planning to develop the entire website from scratch.
-   Allows developers to specify custom HTTPS routes. The developer also has the authority to create specific URLs for each route.
-   Further ensures the security of transmitted data by adding https:// before the URL automatically
-   Laravel keeps its authenticator application very simple for developers. Almost all authentication codes have been implemented in Laravel. It controls logic and resources very efficiently.
-   Laravel offers simple API support for mail systems. Laravel also supports SMS service so that a user can communicate easily.
-   Helps to develop an application faster without losing its functionality. It mainly uses tools like cached drivers that can collect information cached in a file system. Laravel can also use multiple caches.
-   Error handling has been included in Laravel out of the box. Laravel's Monolog library system helps to manage failures in a program.
-   Presents utilities that help in the development of web applications.
-   The web application becomes more scalable; considerable time is saved in design.

Disadvantages

-   Application-specific payment feature is not supported.
-   This framework does not offer seamless updates.
-   Consequently, that LARAVEL is based on a PHP command line, this programming language is unnecessarily complicated and amateur web developers cannot create web applications based on it.
-   Any PHP-based framework like LARAVEL shows problems for a long-time supporting version, which ultimately makes it difficult to get updates.
-   The page reloads for a longer time for mobile applications than for websites.
-   Problematic updates.

Laravel and Yii differences

According to a REALCLOBBER disclosure some aspects that make the difference between one framework and another are: project setup, Yii and Laravel can be easily configured using composer. Both are easy to install, however, Yii ranks higher than Laravel, it has a simple and smooth installation, while Laravel is a bit more tedious to install. Another point are the extensions. Laravel comes with several extension points that help web application developers to customize the behavior of core components or replace them completely, while Yii offers useful functionalities, has extensions for both beginners and experienced developers. In terms of

security, both come with adequate mechanisms for authentication, protection, forgery, SQL injections, among others. Form validation is another comparison between these two frameworks. Laravel comes with a separate validation class that allows PHP application developers to perform form validation. Yii offers a different platform for form validation. This platform comes with a model class.

In the table 1 we can see the results of the comparison of the Laravel Framework and Yii with the criteria that have been studied in previous research in a simplified form.

Table 1. Framework Comparison

	PHP Laravel Framework	PHP Yii Framework
Newest version	9.x	2.0
Release date	2022 Feb 8	2022 May 22
License	MIT License	BSB
Requirements	>= PHP 7.1.3	>= PHP 5.4.0
Code generation	CLI	Yii CLI, Gii (Web based)
ORM	Eloquent	Database Access Objects (DAO), active record
CRUDE generation	CRUD Booster	Gii
Template engine	Blade	Razor, Smarty, Twig, etc.
MVC	yes	yes
Web-site	www.laravel.com	www.yiiframework.com

3. DISCUSSION AND CONCLUSIONS

Based on the search results obtained, Yii and Laravel have certain similarities in their functionality, however, each of them individually has specific characteristics that distinguish them. Both frameworks are excellent for developing large systems and are well developed in PHP frameworks, secure, high performance, open source, and both follow the model-view-controller design pattern. According to the results, Laravel is the one that has been used the most in recent years, this is due to the fact that users select the framework that addresses the problems and locates them at a faster rate, in addition to having more functions to choose from. However, Yii is an easier framework to learn, more accessible, faster performing, and ideal for building a small to medium sized website. The choice of the type of framework will depend on the requirements of the developer or the owner of a project or business.

REFERENCES

[1] Abutaleb, H., Tamimi, A., & Alrawashdeh, T. (2021, July). Empirical Study of Most Popular PHP Framework. In *2021 International Conference on Information Technology (ICIT)* (pp. 608-611). IEEE.
[2] BAGWAN, M. K. I., & GHULE, S. D. (2019). A Modern Review on Laravel-PHP Framework.
[3] Garbarz, P., & Plechawska-Wójcik, M. (2022). Comparative analysis of PHP frameworks on the example of Laravel and Symfony. *Journal of Computer Sciences Institute*, 22, 18-25.
[4] Haris, N. A., & Hasim, N. (2019). PHP frameworks usability in web application development. *Int. J. Recent Technol. Eng*.
[5] Keck, B. (2014). Yii 2 for Beginners. *British Columbia: Leanpub*.
[6] Kyriakakis, P., Chatzigeorgiou, A., Ampatzoglou, A., & Xinogalos, S. (2019). Exploring the frequency and change proneness of dynamic feature pattern instances in PHP applications. *Science of Computer Programming*, 171, 1-20.

[7]   Laaziri, M., Benmoussa, K., Khoulji, S., Larbi, K. M., & El Yamami, A. (2019). A comparative study of laravel and symfony PHP frameworks. *International Journal of Electrical and Computer Engineering*, *9*(1), 704.

[8]   Laaziri, M., Benmoussa, K., Khoulji, S., & Kerkeb, M. L. (2019). A Comparative study of PHP frameworks performance. *Procedia Manufacturing*, *32*, 864-871.

[9]   Latif, U. K., & Kusumasari, T. F. (2017). Performance Comparison of Executing Large Data in Yii2 and Laravel Framework.

[10] Laravel (2011-2022). www.laravel.com

[11] Latif, U. K., & Kusumasari, T. F. (2018). Comparison Between Yii Frameworks and Laravel in 3 Different Version for Viewing Large Data of Shipyard Industry in Indonesia. *International Journal of Innovation in Enterprise System*, *2*(01), 13-18.

[12] Mahmood, M. T., Ashour, O. I., Ucan, O., & Bayat, O. (2019). Design and Implementation of Web Based For Intermediate Online Shop with Laravel Framework. *Int. Journal of Comp. Science & Mobile Computing*, *8*(3), 124-133.

[13] Manger, C., Trejderowski, T., & Paduch, J. (2010). Advantages and disadvantages of framework programming with reference to Yii php framework, gideon. net framework and other modern frameworks. *Studia Informatica*, *31*(4A), 119-137.

[14] Muchtar, A. Z., & Munir, S. (2019). Perancangan Web E-Commerce Umkm Restoran Bakso Arema Menggunakan Framework Laravel. *Jurnal Teknologi Terpadu (JTT)*, *5*(1).

[15] Prokofyeva, N., & Boltunova, V. (2017). Analysis and practical application of PHP frameworks in development of web information systems. *Procedia Computer Science*, *104*, 51-56.

[16] Qodirov, F. E., Jurayev, S. S., Rustamov, M. A., & Amirov, T. Q. (2019). OVER VIEW FROM YII 2 FRAMEWORKS, AND ALSO ITS ADVANTAGES AND DISADVANTAGES. *СОВЕРШЕНСТВОВАНИЕ МЕТОДОЛОГИИ ПОЗНАНИЯ В ЦЕЛЯХ РАЗВИТИЯ НАУКИ*, 39.

[17] RealClobber (2021). Laravel Vs Yii: Which one is better for your business?. Recuperado de https://realclobber.com/laravel-vs-yii/

[18] Saroni, M. I. N., & Mulyanti, B. (2020, April). Hypertext preprocessor framework in the development of web applications. In *IOP Conference Series: Materials Science and Engineering* (Vol. 830, No. 2, p. 022096). IOP Publishing.

[19] Solanki, N., Shah, D., & Shah, A. (2017). A Survey on different Framework of PHP. *International Journal of Latest Technology in Engineering, Management & Applied Science (IJLTEMAS)*, *6*(6), 155-158.

[20] Subecz, Z. (2021). Web-Development with Laravel Framework. *Gradus*, *8*(1), 211-218.

[21] Suherman, A. M., & Nainggolan, E. R. (2021). Pemanfaatan Framework Laravel Dalam Pembangunan Sistem Penjualan Alat Instrumentasi Listrik. *Journal of Information and Technology*, *1*(1), 11-18.

[22] Sunardi, A. (2019). MVC architecture: A comparative study between laravel framework and slim framework in freelancer project monitoring system web based. *Procedia Computer Science*, *157*, 134-141.

[23] Tahir, T. B., Rais, M., & Sirad, M. A. H. (2019). Aplikasi Point OF Sales Menggunakan Framework Laravel. *JIKO (Jurnal Informatika dan Komputer)*, *2*(2), 55-59.

[24] Thakur, R. N., & Pandey, U. S. (2019). The role of model-view controller in object oriented software development. *Nepal Journal of Multidisciplinary Research*, *2*(2), 1-6.

[25] Valarezo, R., & Guarda, T. (2018, June). Comparative analysis of the laravel and codeigniter frameworks: For the implementation of the management system of merit and opposition competitions in the State University Península de Santa Elena. In *2018 13th Iberian Conference on Information Systems and Technologies (CISTI)* (pp. 1-6). IEEE.

[26] Warsito, A. B., Yusup, M., & Yulianto, Y. (2014). Kajian Yii Framework dalam Pengembangan Website Perguruan Tinggi. *Creative Communication and Innovative Technology Journal*, *7*(3), 437-451.

[27] Yiiframework (2008-2022). Guía Definitiva de Yii 2.0. Recuperado de www.yiiframework.com l

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