

# PHP Framework for Web Application Development

**Sangay Tenzin**

Lecturer, Department of Information Technology, Jigme Namgyel Engineering College, Samdrup Jongkhar, Bhutan

**Abstract:** PHP is one of the widely used language for web development. However, due to the unstructured development model, the code of data access, process of business logic and web presentations were mixed. It confuses and causes problems for the web developers. On contrary, PHP framework provide basic structure for building web applications thereby helping developer in promoting rapid application development (RAD). It helps to save time, reduce repetitive code and the application can be built with more stability. This is due to the fact that the framework uses the concept called Model View Controller (MVC) to overcome the issue of plain PHP. The paper presents basic concepts of PHP frameworks and also the overview of top 5 PHP framework based on the usage stats.

**Keywords:** PHP, Framework, MVC, RAD, Web Application.

## I. INTRODUCTION

Hypertext Pre-processor (PHP) is the world's most popular scripting language [1, 2, 3] because of its flexibility and ease of use among others [4, 5, 6]. It combines all the business logic and mark-up in a single file where even a novice developer can read and understand. However, when it comes to code structure, it really gets rather monotonous and repetitive. The maintenance and scalability of the application becomes difficult at times because of the unorganized structure [5]. On the contrary, PHP Framework simplifies the web programming and structure the coding [7] which can be easier for the developers to grasp the flow of program. It also provides the developers with a basic framework model, as well as a complete set of APIs, libraries, and extensions which help them to develop web applications much faster and easier [4, 5]. Moreover, frameworks can also help novices to build more stable applications by ensuring proper database connections [4] and coding on the presentation layer. This allows developer to spend more time creating the actual application rather than writing repetitive code [7, 8]. The developers need not have to take much time in coding through the use of frameworks, thereby increasing the productivity [5, 7]. Furthermore, it has large community team as well as easily accessible documentations in placed to support if one faces any issues related to the framework [8]. PHP frameworks follows the concepts called Model, View and Controller (MVC) design pattern. MVC typically splits an application into separate layers [2, 4, 9] thereby enabling developers to maintain clean code throughout the application. It also eases the confusion for the developers to work on the project. Furthermore, code flexibility and reusability can be achieved [4, 5].

## II. BASIC CONCEPT OF PHP FRAMEWORK

PHP framework are the collection of PHP classes and functions that are being followed by the developers while developing a website [10]. It enables developers to develop the application faster, efficiently and assist in building applications thereby reducing the repetitive code during the development [8, 11]. Generally, the working of PHP framework is referred to as Model View Controller whereby business logic is isolated from the user interface, allowing one to be modified without affecting others [9]. Given Fig.1 shows the MVC patterns in PHP frameworks:

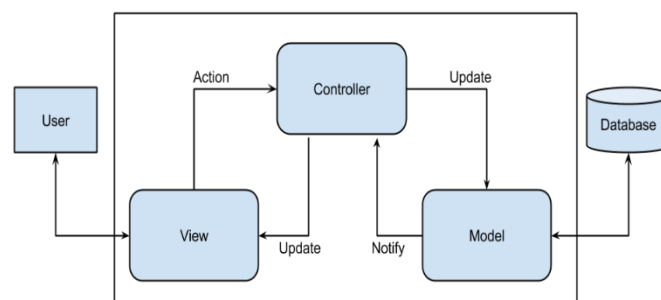


Fig. 1 MVC

**A. Model**

“The Model is a class having variables with different data types along with getter and setter properties” [12]. Its main function is to give proper response to the request of view class and controller class [12, 13]. It contains server-side business logic [14] which can be used for reading and writing the data to the databases. The data will be allowed to accessed, which can be either viewed or updated [15]. However, it will have no idea of what happens to the data as it is passed to the View or Controller components.

**B. View**

“The main responsibility of the view class is to provide the graphical user interface output for model component that is specifically designed for client side” [12]. It presents the data requested from the Model and its final output is determined [14]. The users of the system can interact with the view of the application. If the user of a system performs an action on View, it will trigger the controller for necessary actions [15].

**C. Controllers**

The controller is the application layer of the system. It handles the data that is submitted by the users, and the Model is updated accordingly [14]. The main purpose of the controllers is to collect information from the users and forward it to the model for further course of actions. Therefore, it can be also called as the collectors of information [12].

**III. TYPES OF PHP FRAMEWORK**

According to [16], various PHP frameworks are available for the developers to implement in their project. However, one must understand the features and limitation of particular framework which otherwise will provide not much advantage over the plain PHP. It is therefore vital for one to know the features and application of specific framework to be implemented in the right web application development project. Following section list top 5 popular frameworks which are applicable for web development project.

**A. Laravel**

Laravel is the open-source PHP frameworks and provide various built-in features and functionalities [17] that help the developers to customize the complicated project [16, 17]. Some of the mostly used features available are “user authentication, session management and caching [16].” It can be considered a good choice for small and big project [16] which has sophisticated backend needs [17].

**B. Codeigniter**

“Considered as a lightweight framework designed for developers that require a simple and beautiful toolset to build full-featured web applications [16].” As the framework take less storage space, it ensures quicker page loads and there will be less impact on web server and applications [16]. Though the performance of framework is high, it is applicable for small servers [16] which has lightweight applications [17].

**C. Symfony**

“Symfony is a modular component-based and thus provide a lot of flexibility [16].” It can be chosen for developing applications which can be implemented for a large scale [17]. PHP components in the framework can be reused [16, 17] as and when required. Moreover, it has no compatibility issues and therefore, can be integrated [16] with the libraries of other vendors. It also has flexible and robust debugging toolbar [16, 17] to aids developers during the debugging process.

**D. Laminas Project**

It is also called as a “glue framework [16]” because of its nature being the component-based design. The architecture can be used with loosely linked components and few interdependencies [16]. As it adheres to the corporate development principles, it is appropriate for the sophisticated web applications [16].

**E. CakePHP**

CakePHP is considered to be a simple framework, yet it provides a beautiful toolbox [16] to work on. According to [16], it can be used to “create aesthetically appealing, and feature-rich websites”. Moreover, it is considered to be the simplest frameworks to be learn the developers [16, 17]. Furthermore, security features such as “SQL injection prevention, input validation, cross-site request forgery (CSRF) protection, and cross-site scripting (XSS) protection” make it an excellent option for the business applications [16].

**IV. COMPARISON OF PHP FRAMEWORKS**

As per the report of [18, 19], Laravel is leading all the frameworks of PHP with the usage stats of 43.7%. Codeigniter is 2nd most framework being used with a percentage of 14.9% followed by symfony with 13.6%, Zend with 12.5% and so on as shown in Figure: 2 [18, 19]. Fig. 2 shows the comparison of frameworks.

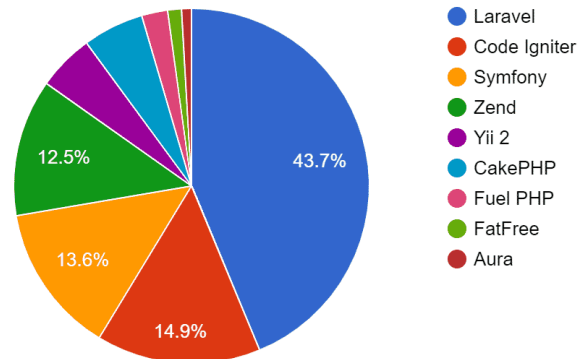


Fig. 2 Framework Comparison

Furthermore, the latest google trends (as of 1st March 2022) as shown in Figure: 3 [19], shows the Laravel as the most popular among the PHP frameworks.

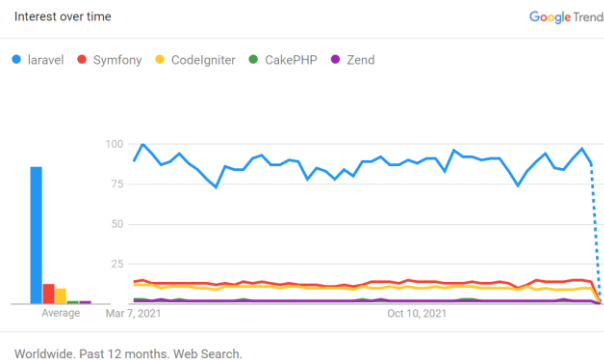


Fig. 3 Popularity of frameworks based on google trends

**V. IMITATION AND FUTURE SCOPE**

The researcher has presented the information based on the data collected from different sources. Moreover, the sources referred by the researcher were mostly theory-based rather than the data of practical implementation. In this regard, the researcher feels the need to validate the information presented by practically implementing it in near future.

**VI. CONCLUSION**

PHP seems to have not provided much advantage to web developers in the past over other technologies. However, with the advent of many PHP frameworks, the web developers were found to be inclined in exploring as well as implementing any kinds of project with it. PHP frameworks has helped the developers to reduce repetitive coding and maintain the clean code. This has ultimately led them to speed up the development process as well as minimize the loop holes in the project. While some experts don't support the use of frameworks due to some restrictions provided by it, however, most of the users found it more advantages in a situation where a rapid development is necessary. Moreover, even the novice users will be able to enhance the learning process through the use of framework. Based on its trending features and support team, the frameworks were chosen to be used in the specific web development project.

**REFERENCES**

- [1] P. R. Chavan and S. Pawar, "Comparison Study Between Performance of Laravel and Other PHP Frameworks," *International Journal of Research in Engineering, Science and Management*, vol. 4, no. 10, pp. 27-29, 2021.
- [2] N. Solanki, D. Shah and A. Shah, "A Survey on different Framework of PHP," *International Journal of Latest Technology in Engineering, Management & Applied Science (IJLTEMAS)*, vol. VI, no. 6, pp. 155-158, 2017.
- [3] A. Mishra, "Critical Comparison of PHP And ASP.NET For Web Development," *International Journal of Scientific and Technology Research*, vol. 3, no. 7, pp. 331-333, 2014.
- [4] C. Supaartagorn, "PHP framework for database management based on MVC pattern," *International Journal of Computer Science & Information Technology (IJCSIT)*, vol. 3, no. 2, 2011.
- [5] M. Laaziri, K. Benmoussa, S. Khouliji and M. L. Kerkeb, "A Comparative study of PHP frameworks performance," in the 12th International Conference Interdisciplinarity in Engineering, 2019.
- [6] Y. Zhang and X. Gao, "Implementation of Online Guiding Framework based on Multimedia and PHP under the influence of new coronavirus," in *Proceedings of the International Conference on Electronics and Sustainable Communication Systems (ICESC 2020)*, 2020.
- [7] N. Prokofyeva and V. Boltunova, "Analysis and Practical Application of PHP Frameworks in Development of Web Information Systems," in *ICTE 2016, Riga*, 2016.
- [8] X. Li, S. Karnan and J. A. Chishti, "An Empirical Study of Three PHP Frameworks," in the 2017 4th International Conference on Systems and Informatics (ICSAI 2017), 2017.
- [9] S. Tenzin, T. Lhamo and T. Dorji, "Design and Development of E-Commerce Web Application for Cooperative Store," *International Research Journal of Engineering and Technology (IRJET)*, vol. IX, no. 2, pp. 843-847, 2022.
- [10] "An introduction to PHP frameworks," 24 July 2013. [Online]. [Accessed 9 March 2016].
- [11] S. Jacobs, "When and why to use PHP framework?" 4 April 2014. [Online]. [Accessed 12 March 2016].
- [12] S. Singh, "Comparative Study of MVC Architecture with respect to Struts Framework and PHP," *International Journal of Computer Science Engineering (IJCSE)*, vol. V, no. 3, pp. 142-150, 2016.
- [13] S. I. Adam and S. Andolo, "A New PHP Web Application Development Framework Based on MVC Architectural Pattern and Ajax Technology," in *1st International Conference on Cybernetics and Intelligent System (ICORIS)*, Bali, 2019.
- [14] "An Overview of PHP Frameworks," 24 July 2010. [Online]. [Accessed 1 May 2016].
- [15] "The MVC Pattern and PHP," March 4 2013. [Online]. Available: [www.sitepoint.com](http://www.sitepoint.com). [Accessed 1 May 2016].
- [16] "Top 10 PHP Frameworks to Use in 2022," 3 January 2022. [Online]. Available: <https://www.interviewbit.com/blog/php-frameworks/>. [Accessed 28 February 2022].
- [17] M. Laaziri, K. Benmoussa, S. Khouliji, K. M. Larbi and A. E. Yamami, "A comparative study of laravel and symfony PHP frameworks," *International Journal of Electrical and Computer Engineering (IJECE)*, vol. IX, no. 1, p. 704, 2019.
- [18] P. Sagar, "Top 7 PHP frameworks foe web development in 2022," 2 August 2019. [Online]. Available: <https://www.excellentwebworld.com/best-php-frameworks/>. [Accessed 1 March 2022].
- [19] S. Sharma, "List of top PHP frameworks you can use in 2020," 21 February 2020. [Online]. Available: <https://www.classicinformatics.com/blog/top-php-frameworks-2020>. [Accessed 1 March 2022].
- [20] K. Lei, Y. Ma and Z. Tan, "Performance Comparison and Evaluation of Web Development Technologies in PHP, Python and Node.js," in *IEEE 17th International Conference on Computational Science and Engineering*, 2014.