Analyzing Optimal Practises for Web Frameworks

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Abstract - *Because of the rising need for online development, a PHP framework is a vital tool in the web developer's toolkit. PHP frameworks are becoming more popular in web-based applications since they aid cut development time and help fulfil code standards. The usage of a framework is generally required for medium and large-scale projects, although it may also be beneficial for smaller projects. PHP has become the most popular programming language among developers, resulting in an explosion of PHP frameworks. There is a lot of disagreement regarding which PHP frameworks are the best, since not all frameworks are made for everyone. In fact, not all frameworks are designed to satisfy the same goals, and in certain cases, many frameworks may be utilised simultaneously. Choosing the correct framework, on the other hand, might be challenging at times. To make the decision-making process simpler, we provide a practical and comprehensive strategy for comparing and evaluating the major PHP frameworks. This model is built on a set of characteristics that include intrinsic durability, industrialised solution, technical flexibility, strategy, technical architecture, and speed. The results reveal that the values of these factors enable developers to identify the framwork that best fulfils their demands quickly and accurately*

Key Words: PHP, Framework, CodeIgniter, Model, View, Controller.

1.INTRODUCTION

The rapid growth of web-based applications has had an impact on coding practises. This indicates a greater requirement for long-term sustainability and upkeep. PHP is also a web programming language that is utilised in the building of dynamic interactive websites. It's a multipurpose, open source programme that just takes a few minutes to set up [1]. Furthermore, PHP has evolved into one of the most powerful programming languages for online application development. Several PHP programming strategies, such as procedural PHP coding and Object Oriented Programming, have been presented to address the challenges generated by the rising complexity of projects. As a result of this quick growth, various frameworks, such as the CodeIgniter PHP framework, have evolved to make development duties easier. Indeed, as stated in [2,] they have been upgraded and have "become useful tools for developers to effectively design complicated programmes."

The Object Management Group (OMG) developed the Model Driven Architecture as a strategy to benefit from these frameworks while also handling rapid changes. Using OMG's existing modelling standards, such as Unified Modeling Language (UML) and Meta-Object Facility (MOF), this strategy allows changing business rules in diverse application domains by giving an open way to managing the difficulty of interoperability [3] [4].

We will utilise a Model Driven method to model the CodeIgniter PHP framework and produce CRUD apps based on it in this article, which combines the answers afforded by the introduction of PHP frameworks with the usage of MDE (Model Driven Engineering) in designing applications.

1.1 A Model-Driven Approach To Developing

The OMG introduced Model Driven Architecture, which is based on modelling and transformation to create code, and gave a formal declaration with a number of tools and methodologies [3]. This design emphasises the creation of models with a high degree of abstraction and encourages the transformation of models using predefined rules [5].

Today's systems are dynamic and highly interconnected. MDA offers a platform-independent architecture that ensures portability and cross-platform interoperability in order to meet these problems [3]. CodeIgniter is a well-structured PHP Application Development Framework. Its goal is to offer required tools for typical activities, such as aids and libraries. As a result, project development becomes more simpler and quicker, and developers are relieved of the need to create all of the code from start [2] [10].

MVC is a design pattern that organises software by separating application logic from presentation [11]. CodeIgniter is built on the MVC development technique. Indeed, business-related PHP coding is isolated from web pages [12]. Fig.1 shows the CodeIgniter directory structure.
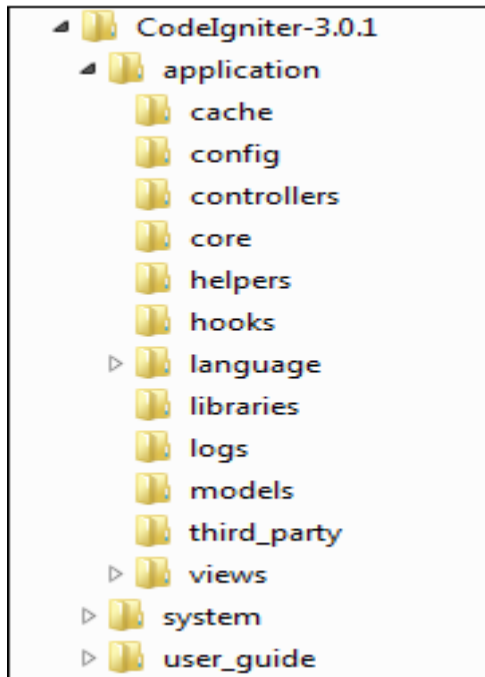
Fig -1: CodeIgniter directory structure

- The Model contains the business logic of the application. It gathers functions related to data accessing and third-party services.

- The View is composed of user interface elements such as HTML, CSS and JavaScript files. In CodeIgniter, a view can be a web page, a fragment of a page, a RSS page.

- The Controller connects views, models and any needed resources to process and respond to the user request. It is the point of entry that instantiates the required views and models [13].

1.2 Validating CodeIgniter for web development

CodeIgniter model view controller framework comprises varied properties and tools which can be utilized for building web applications in a short span of time.

Secure Framework: Any web development firm will constantly look for methods to improve security. Many security-rich functions and a variety of features with different integrated functionality for input and output filtering are included in the CodeIgniter foundation. The majority of them describe the encryption and decryption methods, which is very useful for any developer who wants to take control of and manage data throughout the installation process. Simpler Configuration: The CodeIgniter PHP framework includes a linear layout and a folder structure that may be used freely. This helps to simplify the PHP syntax while using this framework. As a consequence of this structure, web applications may be built without any

difficulty in keeping up with complicated schemes of syntax mistakes, and in a considerably shorter amount of time.

Easy to Use: The PHP CodeIgniter model view controller framework provides a simple interface that makes learning and using it a breeze. Because it is open-source, this framework may be readily customised to meet your company's needs. If the needs change in the future, it may easily be included into your project via quick solutions leveraging the many controllers and tools available.

More Results with Fewer Codes: Codeigniter is a popular app development framework that requires its users to write a few lines of code. There is no obligation to employ third-party libraries, paving the path for peedier web app development right now. As a result, if you need to construct a web app quickly, this framework is highly recommended.

Remarkable Documentation: Documentation helps developers manage and refer to their code, as well as think about future references. The CodeIgniter web framework makes it easier to keep track of important documentation for the programmes you've written. Such detailed documentation of your web app's code serves as a valuable CodeIgniter user guide.
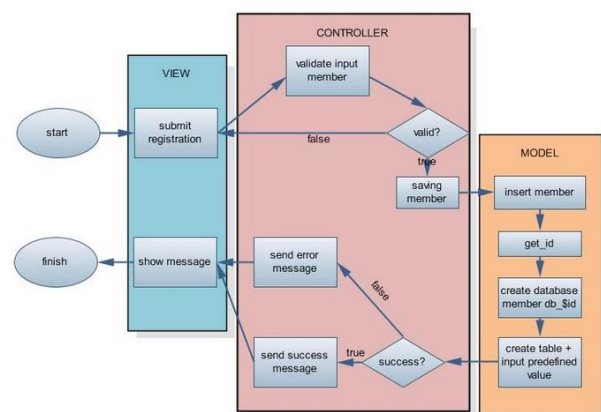

Fig -2: CodeIgniter framework

CodeIgniter web application framework has a variety of incredible functions that are used to simplify the task of development. The benefits of CodeIgniter development are as follows: With the superior interface provided by the CodeIgniter web framework, you may create an outstanding website with ease. You may use this framework to create a site with vivid functionality or a platform that is very responsive. CodeIgniter is a great alternative for developers all over the globe because of its sophisticated interface and adaptability. It gives developers a simple way to employ modular techniques and allows them to leverage all of the features. Furthermore, it enables them to swiftly complete a variety of duties linked to both front and back end applications.

If we examine database migration and updates, CodeIgniter enables any organisation to move from one server to another. Udemy, Medical Guardian, QuinStreet, and Abode are just a handful of the firms that use Codeigniter. They utilise this framework because it provides enough migration assistance and is simple to use. If you can't recall where you put your previous data, you may easily transfer it to our platform without any interruption. CodeIgniter has the ability to improve your website's rating. When it comes to scaling up site traffic, many digital marketing gurus choose this platform for online apps. It also has a variety of capabilities that, when combined, may help with overall website optimization without affecting the layout or other key parts.

CodeIgniter is one of the frameworks that allows for test-driven development, ensuring that any developer may use its step-by-step testing process to build a website. The performance of the websites may be easily evaluated. With this technique, each component of the process can be extensively examined, and efficient testing of each phase may be expected.

This framework is more trustworthy than the rest of the frameworks on the market due to its various encryption and decryption properties. Because of its better security features, CodeIgniter is the best choice for enterprises looking for the most trustworthy technology for their online applications.
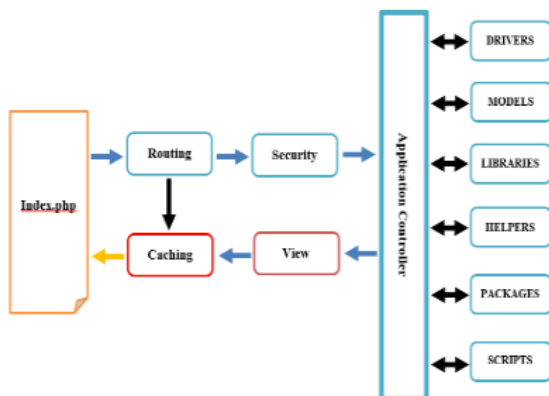
1.2 CodeIgniter Workflow

Fig -3: CodeIgniter workflow

From Figure 3 about the work system Code Igniter, can be explained as follows:

1.Index.php is the initial controller that initializes the need to run Code Igniter.

2.Router / Routing is the part that determines the activities that must be carried out when there are requests / requests from clients / browsers.

3.Caching is a part that checks whether data has been requested or not. If the cache is active, it will be sent directly to the client / browser regardless of the normal workflow.

4.Security, before the application is sent, the data will be filtered first as security.

5.The controller is the controller of the application, and will immediately process according to requests / requests requested, namely models, libraries, helpers, plugins and scripts.

6.View is a part of presenting information to the client / browser in accordance with the requested request (after passing through stages 1 through 5).

2. RESULT AND DISCUSSION

Selecting a web development framework is not a simple undertaking, since it includes a range of factors, including the framework's internal architecture, convenience of use, technological capabilities, and future progress. In any event, selecting a development framework may only help to enhance the quality of an existing system, which is seldom effectively built in the absence of processes, conventions, or standards. It remains to be determined which framework is most appropriate for your requirements and circumstances.

3. CONCLUSION

Codeigniter is a PHP framework with an open-source development environment that is one of the finest. It aids PHP developers by allowing them to utilise modular methods and get any specified function in the easiest manner possible. Because of its friendly urls, it is simple to create large-scaled dynamic and secure online applications. It features a fantastic debugging feature that instantly detects flaws and shows warnings and errors.

Furthermore, it is capable of resolving these issues throughout the development stage. The many arguments given for using the Codeigniter web app framework demonstrate why it is one of the most extensively utilised frameworks. It is without a doubt the ideal platform for app development right from the start.

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