Frameworks And Libraries

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*Abstract*—

Keywords—

# Web Development

## Websites

When the developer or organisation's primary goal is simply to provide information for the user to consume, a website is used. So, inherently, websites are relatively simple, requiring only HTML, CSS and optional use of JavaScript; this means that they are expected to be relatively static, that is, they don't modify the contents of the page based on user interaction. Due to the use of JavaScript, a website may employ some simple events and actions like: subscribing to a mailing list or providing a means to share the website with other users [1].

## Web Applications

Web Applications (Web Apps) have the primary aim of allowing a user to perform various tasks, requiring some use of logical processing. Web Apps are generally standalone applications, that is, they satisfy some function by themselves without the use of third party applications, e.g. Instagram allows users to share their photos to their profile for other users to see. Due to this dependency on fulfilling tasks and providing functionality, Web Apps are inherently dynamic in nature [1].

# Libraries Versus Frameworks

## Libraries

Libraries are a collection of utility methods and classes that perform some functionality. The benefit of a software library comes from the ability for your source code to call upon any function of a library to perform a task or series of tasks [2]. In this way, once the function is being used correctly, the use of libraries does not complicate the development process.

## Frameworks

Frameworks are a little more complex. They contain functionality and flow of control. Conversely to libraries, frameworks make calls to the developer's source code. This phenomenon is referred to as "Inversion of Control". The primary advantage here is that one need only customise behaviour, rather than determine a plethora of library functions to receive the desired output. Due to the innate extensibility of frameworks, they can easily become needlessly complicated [2].

## In the Context of PHP and JavaScript

The key difference between frameworks and libraries needed to compare them is the understanding that; with libraries, your code makes references and calls to methods and attributes within the library, whereas a framework defines when your code will be executed.

In PHP:

Framework::run() {

// code

};

In JavaScript:

$.ajax ({

…

Success: function (data) {

// code

}

});

As the above illustrates, there are some predefined constructors and event triggers which will execute the developer's code.

# PHP Web Development

## Frameworks for Websites

In PHP, there are many frameworks and libraries that are used to facilitate the development of web projects. Firstly, is Laravel, a very popular framework that is geared towards code organization in your web applications. Due to its growth, Laravel allows the extension of robust packages for customisable functionality. This backing also lends itself to deep documentation and support through online forums. Secondly, is CodeIgniter – a lightweight framework with an easy to facilitate installation process. Backed by British Columbia Institute of Technology, its continued growth is near guaranteed, much like its MVC counterpart backed by Google, Angular. CodeIgniter facilitates unit tests, validation and web sessions. The framework also has a small learning curve for building your own libraries should you be unable to find one.

## Frameworks for Web Applications

Symfony is a high-performance library build with modularity in mind for your web projects. With extensive documentation and online forums, it is justified as a professional option for web development accessibility. Lastly, Aura is a set of PHP libraries for basic web development projects. This option features modular non-dependent libraries for a flexible development process.

# Further Discussion on Web Development

## Libraries and Frameworks Versus Custom Development

# Further Discussion on Use of Frameworks

## Characteristics of Development Using Frameworks

# References

1. .
2. R. Almuttairi, "Websites vs. Web Applications".
3. A. Rotem-Gal-Oz, "If You Build It ... Will they Come?", Dr. Dobb's Portal.