# Purpose of web frameworks

Web framework is a software framework which is created to support the development of dynamic websites, web applications and web services. The development of a dynamic website is made easy with the use of a web framework. It provides a basic pattern of the code which helps quicken the process of web development. Web frameworks help simplify the process of web development and keep it as modern as possible. Web frameworks automates the repetitive web development tasks. Web frameworks gives you a process for turning an idea into code. A framework is a basic conceptional structure. Most of the applications have a common set of functionalities such as handling session data validation etc, and web framework prevent a developer from re-writing the same code every time to create a web app. The purpose of frame works is to allow developers to build unique features for their web projects instead of rewriting the same code repeatedly. Each framework may provide you a wide range of web app functionalities, resulting in a less error-prone program. In a nutshell, a framework aids in the prototyping, design, and implementation phases of the app development lifecycle, as well as the continuing maintenance and enhancement of a web application. Frameworks are very helpful when it comes to online security. Coming up with your own security is costly and dangerous if you do not do it right. To make anything more resilient, a framework can incorporate security aspects into its functioning and combine bug-fixing efforts. A framework can be secure by default, at least in theory. Most applications/websites these days require login, signup, password rest, authorization, API’s, logging, database, sending emails, payment processing, deployment, input validation etc, if a beginner must implement all of this in their design without a framework, they would be lost, but with the help of a framework these tasks can be implemented easily and can be reused if possible.

There are two types of Frameworks Client side(frontend) and Server(Backend) side frameworks

Server side – These control the database, the logic of the application, payment methods, security of the website and the server configurations. Some of the common server side frameworks are, expressjs, ruby on rails, Laravel, Django etc

Client side – Everything that you see on the website in the UI is controlled using the client side frameworks. Some of the common client side frameworks are, vue.js, angular, react etc.

## Common Framework Features

Some of the common features in a web framework are:-

**Caching –** Web caching helps save documents while reducing bandwidth consumption., server load and perceived lag. A web caches stores copies of pages that travel through it and if certain requirements are met, the following request can be served from the cache. Some application frameworks have features for caching documents and skipping certain stages of page preparation such as database authentication. (Web)

**Security –** Most frameworks these days come with authentication and authorization, which helps with the login, register etc of a web application, this helps restrict access to users which don’t meet the defined criteria. Security in a system allows users to view pages based on their roles and has a web-based interface for establishing users and assigning them roles. (Web)

**Database access, mapping and configuration -** Many web frameworks provide a single API to a database backend, allowing web applications to interact with a range of databases with no code modifications and programmers to focus on higher-level concepts. (Web)

**URL Mapping -** The process through which a framework reads URLs is known as URL mapping or routing. Shorter, more "friendly URLs" can be used with a URL mapping system that employs pattern matching or rewriting to route and manage requests, boosting the site's simplicity and allowing for easier indexing by search engines.

**AJAX (“Asynchronous JavaScript and XML”) –** Is a technique which is used for creating web applications. The goal is to make web pages feel more responsive by exchanging little pieces of data with the server behind the scenes, rather than reloading the complete page every time the user demands a change. This is done to improve the interactivity, speed, and usability of a web page.

**Web Services -** Some frameworks include web service creation and provisioning features. These tools may be comparable to those found in the rest of the web application.

**HTML** **(or Hypertext Markup Language) -**  It is a computer language used to build websites.

## **CSS**(or Cascading Style Sheets) – It is a language used for styling websites. HTML elements are represented using CSS on a web page. It helps with design, layout, screen sizes etc. It helps beautify a web page.

**Components –** Web Component-based custom components and widgets will function in all modern browsers and may be used with any JavaScript library or framework that works with HTML.

## Features used in Website

The features which are used in the project are URL Mapping, the URL routing is more user friendly. So, the users can easily tell what page they’re on instead of reading through some complicated routes. We have also used the security feature on the website, we have used JWT authorization to always keep the user accounts secure. We also have different login accounts of different users, e.g., the content visible to an admin user is restricted to an admin account, whereas the user account will only have access to the content we want visible for regular users. Hence the security on the website has been given priority. We have also used Database access, mapping, and configuration, we have used MongoDb to store our database. We also have the feature of web service on the website since we do have a server running on our computer, listening to port over a network, serving our web documents. (htt21). For the front end we have used components (Material components)

# Bibliography

What is a Web Framework? (2017, July 28). *GoodFirms Glossary - GoodFirms*. <https://www.goodfirms.co/glossary/web-framework/>

*What is a web framework? | CodingNomads*. (n.d.). Retrieved May 30, 2021, from <https://codingnomads.co/blog/what-is-a-web-framework/>

*Why do we use Web Frameworks?* (2017, June 19). LispCast. <https://lispcast.com/why-web-frameworks/>

*How useful are web application frameworks? & How do I know which framework would suit me?* (2014, September 23). Cuelogic Technologies Pvt. Ltd. <https://www.cuelogic.com/blog/how-useful-are-web-application-frameworks-how-do-i-know-which-framework-would-suit-me>

Web framework. (2021). In *Wikipedia*. <https://en.wikipedia.org/w/index.php?title=Web_framework&oldid=1022782175>

Web service. (2021). In *Wikipedia*. <https://en.wikipedia.org/w/index.php?title=Web_service&oldid=1021433007>