WEB701

Assignment 2.2

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# Web Frameworks:

A web framework is a type of software framework used in the development of web applications. A web framework uses web services, web resources and web APIs for creating these web applications. These frameworks deliver a standard way if building and deploying web apps and aim to automate the building of web apps by providing libraries for database access, templates for front end, and session management. The majority of frameworks in use now promote code reuse and target dynamic web applications and must operate according to the architectural rules of browsers and protocols such as HTTP (Wikipedia, 2021) . These frameworks are also made to support the construction of web apps based on a single programming language for example, JavaScript, typescript, angular, Vue, CakePHP to name a few. These such languages are usually built for the purpose of the specific task such as content management or for portal tools.

AS well as different types of framework offered by different companies, there are also three different framework architectures; MVC (push-based), Component Based (pull-based), and Three-Tier Organisation.

MVC or Model View Controller architecture follows the push-based pattern and separates the data and business models from the user interface. This modularizes code and encourages code reuse as well as allowing for multiple interfaces to be utilized. Instead of using different pages, MVC uses different views in displaying and presenting information, and each view has its own corresponding controller.

Component/Push-Based architecture use a view layer that then ‘pulls’ results from controllers as needed. This means that multiple controllers can be corresponded to a single view.

Three-Tier Organization apps are structured around three ‘layers’, data layer, business layer, and presentation layer. The data layer contains the database and all data, the business layer contains the logic of the application and handles transactions between the data and presentation layers, and the presentation layer contains the user interface and hands user input to the business layer.

There are two ways for a framework to function, either server side, or client side. Server-Side applications operate by requiring a page to refresh in order to show changes to data but allow almost any language to be used and more computing power to be applied. Client-Side (otherwise known as single-page applications) applications are limited to only a few languages but allow web pages to be updated in chunks instead of requiring a full refresh so that they feel more like a cohesive application (Wikipedia, 2021).

For the purpose of this development scenario, I will be using two client-side frameworks Angular, and Vue, as well as a JavaScript + Mongo dB framework for the backend of the application. These frameworks will incorporate a JWT authentication sand authorisation service for the login/logout/register functions, as well as authorisation for admin and moderators.

# Prototype Comparisons

## Register, Login, Profile:

### Vue Register:

A picture containing text

Description automatically generated

Timeline

Description automatically generated with low confidence

### Angular Register:

Text

Description automatically generated

### Vue Login:

Text

Description automatically generatedText

Description automatically generated with medium confidence

### Angular Login:

Text

Description automatically generated with medium confidence

### Vue Profile:

Graphical user interface, text, application, email

Description automatically generated

### Angular Profile:

Graphical user interface, text, application, email

Description automatically generated

### Comparison:

The Vue framework seems to be sort of all inclusive in how it sets up each view. Each different function is carried out in its own file along with the styling, service calling, and carrying out of error checking. Because of the folder size of the Vue framework is a lot smaller however file sizes are comparatively larger when compared to the Angular Framework.

Graphical user interface, application

Description automatically generated -Vue File Layout.

The Angular framework however has a separate folder for each function that then contains the html and CSS files instead of everything being in one file like with Vue. This means the file sizes are a lot smaller and code is easier to keep track of so is less confusing and easier to locate certain parts of code.

Graphical user interface, application

Description automatically generated

* Angular File Layout

## Token Service:

### Vue Token Service: Angular Token Service:

### Text Description automatically generated

Text, timeline

Description automatically generated with medium confidence

### Comparison:

The token service for Angular seems a lot more rigorous and robust compared with the Vue token service. Angular has a Token service for allocating, saving, checking token and checking user which seems a lot more secure.

## Interactive Elements:

### Vue Register Page

Graphical user interface

Description automatically generated

Timeline

Description automatically generated with low confidenceA picture containing text

Description automatically generated

### Angular Login Page:

A picture containing table

Description automatically generated

Graphical user interface

Description automatically generated

### Comparison:

Vue uses an all-inclusive format when coding pages/views, so all html and styling is done in the same file as all the functionalities. Whereas with Angular all styling an html is carried out in separate files and is much tidier and easier to manage.

## Storage and Retrieval of Data from Backend:

### Vue Data Store:

### Text Description automatically generated with medium confidence

### Angular Data Store:

Text

Description automatically generated with low confidence

### Comparison:

Again, with Vue the data store service is also lumped in with authenticating a login and producing a response when a login is unsuccessful. With the Angular store service, it is communicating straight with the backend and http and determining whether a user is a moderator, admin, or just a plain user. Again, the Angular service seems more robust and secure.

# Conclusion: Recommended Framework

Built by Google and first released in 2010, Angular has become a very popular TypeScript framework and consists of over 9 stable releases. However, with its use of Typescript it has a steep learning curve, complicated documentation, but is more interactive and flexible when it comes to design and functionality, as well as offering official support (Ratnottar, 2020).

Vue on the other hand was built by an ex-Google employee and is much simpler and easier to learn but has only 2 stable releases since its initial release in 2014 (Ratnottar, 2020). In recent years Vue has become increasingly popular and has bumped out React on the comparison stage when being compared to Angular. As Vue uses all-inclusive file structures for its html, CSS, and JavaScript programming it is quick and easy to use when creating single-page applications (Ratnottar, 2020).

Although Vue has a small learning curve and is much simpler to use, I have chosen to use the Angular framework for the purpose of this website as it is more robust and I find the file structure easier to understand and work with, everything has its own place and file or folder, so comes across as very tidy. There is also more support online for using and learning Angular and I have enjoyed using it when working on the prototype for with assignment.

# References

Ratnottar, S. (2020, 09 08). *Angular vs. Vue – Which is Best for Programming in 2020?* Retrieved from freeCodeCamp.org: https://www.freecodecamp.org/news/angular-vs-vue-which-is-best-for-programming-in-2020/

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