

WHAT IS THE BEST FRONT-END FRAMEWORK FOR THE “NADKO DENTALS” APPLICATION

RESEARCH AND JUSTIFICATION DOCUMENT
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Introduction

This document will discuss the best possible option for a front-end JavaScript framework for the Nadko Dentals single-page application. The research will take into account the needed functionality as well as how easy it would be to integrate it with the Spring Boot Java based back-end API application.

Research methods

- Library

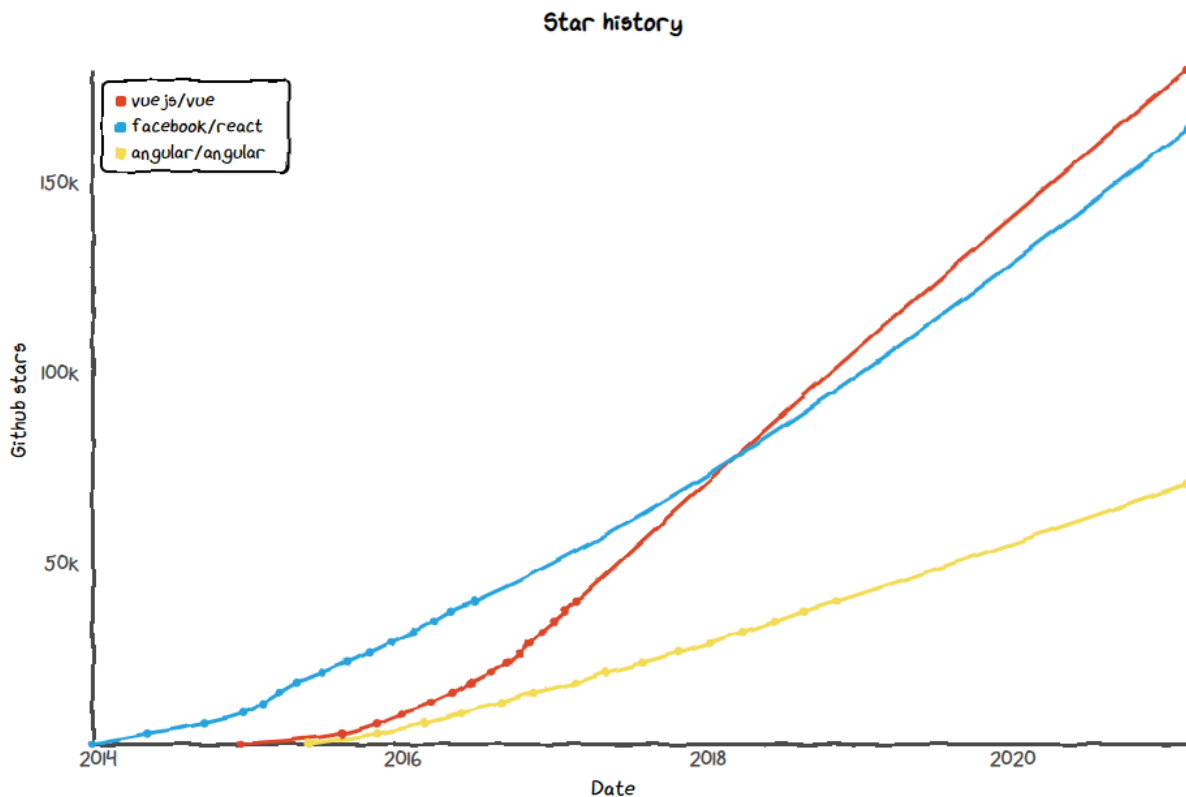
Considering all available options by reading documentations and understanding how each framework works and how well it would fit the project.

- Lab

Using the available framework and seeing how well it fits with the project.

Considered Options:

The three options considered are Angular Vue and React. Each framework will be judged based on how well it fits the project, how the components are set up and its learning curve for first-time-using-a-JavaScript-framework developers.



Angular

Angular is a TypeScript-based open-source front-end framework. Angular is a complete rewrite of the older AngularJS developed by Google for creating dynamic web applications. It was first introduced in 2009 and has gained popularity over the years for eliminating unnecessary code and ensuring the development of faster and safer single-page applications. Angular comes with a great documentation that lists its best features and even provides a “Best Practices” section. In its list of features Angular includes templating which removes redundancies in the code, components which consist of an HTML template, a Typescript class that defines the behavior of the component, a CSS selector that defines the component’s use in a template, and attribute directives that modify the behavior of other HTML elements, attributes, properties and components. (1) Angular applications are built using Typescript language which ensures the application will be more secure as it supports types. It helps catch errors early in development. (2) Angular uses plain HTML to declare what is to be rendered which makes it so the developer doesn’t have to spend extra time thinking about the program flows and deciding what loads first. It uses a simplified MVC model which makes writing getters and setters not needed.

Vue.js

Vue.js is a dynamic JavaScript framework that is used to build UIs and single-page applications. Vue is more of a complete-package framework. It is the newest of the three frameworks and therefore combines the best features of both of its competitors which is obvious in the rise of its popularity. First of all Vue.js’ is the easiest JS framework to get into- its documentation and guide on the official site is explained beautifully with available video tutorials made by the team behind the creation of the framework. (3) One of Vue.js’ best features and one-up over React is its reactivity system. The models are plain JavaScript objects which means when the data changes the view updates. This makes Vue.js’ application state intuitive and easy to understand. (4) Vue.js uses single file components as all the JS, HTML and CSS is inside a single file which makes unit testing and fixing issues easier. These components can be reused whenever they are needed as layouts. Vue.js is easy to integrate into any project as it mainly focuses on the view layer.

React

ReactJs is a JavaScript library for building user interfaces. It was developed by Facebook and is an open source framework that is used as a base in the development of single page or mobile applications. React is easy to use and easy to learn as it requires basic JS and HTML knowledge and provides countless features developed by the open source community. React uses the JSX syntax extension to define its components. It uses HTML quoting rendering and makes subcomponent rendering easier. One of the most useful react features is its ability to reuse components. Each component handles its own logic and its own rendering through the use of React state. One positively unique part about React is its virtual DOM. This means that the view rendered has already “considered” possible changes to the DOM that the user can make after which an algorithm determines the changes made to the virtual DOM and the virtual DOM sends only the changes that need to be implemented to the real DOM. This guarantees the shortest update time providing higher performance and a better user experience.

Another great thing about React is the abundance of developer tools available such as the React Developer Tools for the Google Chrome and Firefox browsers. It allows the developer to inspect the initialization of the React component hierarchies in the virtual DOM from the browser itself. (6)

Conclusion

I have decided to use React for my personal project mainly due to its ecosystem. There are a lot of sources of information about react available and with its open-source nature it provides countless tools that make the job easier for new developers. Furthermore I have already had some experience with React as my group for the group project decided we are going to use Reactjs for the front-end implementation of the project.

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