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React.JS and Front End Development

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ABSTRACT: The most fundamental software or any app development is to select which is the right front end framework or library . The market has a wide variety due to the wide range of problems that developers face every day. For front end development, react.js is playing a vital role and creating new opportunities for developers to build new apps .This paper talks about how react.js is helping to build those application and its t advantages to build the front end. With more than 1,400 developers and over 92,000 sites making use of React.js to build their websites. Companies like Facebook, PayPal, utilize this JavaScript-based UI library for a major part of their application’s front-end development for web as well as mobile. By considering this, the paper consist of the key features of this library and its advantages over other frameworks .

KEYWORDS : react.js, Angular , JS framework, Axios, JavaScript, MVC framework

I. INTRODUCTION

When React came into the picture, Angular was the only and major contender in the JS framework space. While Angular was a complete and proper framework, it was very difficult for developers as they had to do a lot of coding. Even seasoned JavaScript developers, found it difficult to code and they were looking for some alternative to solve their solution. Angular.JS was never the most desirable way to build JS applications. It has more functionalities and which were not used by most of the developers. React.js has revolutionized the way web applications are developed. However, React is not an MVC framework and it is the library only and it does not include state managers, routers, and API managers in the core library. It helps React developers to prepare website as code is very easy to understand with all components and other things. The aim of the paper is to demonstrate the suitability of the react.js frameworks available for the development of web applications as well as mobile.

II. RELATED WORK

Axios is among the most popular when it comes with HTTP clients for both browsers and Node.js. It is simple, lightweight and easy to use for customization. It can work with React and many other frameworks which are used to do the sending of requests and responses. Axios provides support for request and response interceptors, transformers and auto-conversion to JSON. It is also provides protection by default against cross-site request forgery and hence it is also safe.

User can perform the following things using Axios.

- Integrate and configure Axios in React project
- Make async requests in React
- Using Async/Await and error handling
- Make GET requests
- Make POST requests
- Make PATCH requests
- Make DELETE requests

III. ANALYSIS OF REACT VS ANGULAR

Javascript is one of the most popular and easier languages among all the developers nowadays. There are a lot of developers, how used to build their application, project and web related thing using script, but still there is a confusion when they have to pick up right framework or library for their project. Angular and React.js is the top-most priority for all but still, most of them cannot decide between both on which one would be good for their project.

- **Functionalities:** For freshers, React.js is easier to learn with more functionalities and so it has more demand in the market. On the other hand, React.JS is a library and not a framework to build interactive user-interfaces, whereas Angular is a complete framework.
- **Learning :** Angular is a complete framework which requires a lot of learning to be done and developers must put a lot of effort in advance topics, where it requires to learn change detection also. On the other hand, React.Js is just a library and so it is having fewer topics and easier to learn as compared to Angular. Also React uses JSX (Javascript XML) which is a way of writing HTML into JavaScript. Also React provides flexibility and developers can learn quickly using this.
- **Server Side Rendering :** It is another important advantage for some type of React.js implementations using Axios etc whereas it is a bit difficult to connect to server using Angular.js.
- **Components:** Angular works on Real DOM. Angular follows bidirectional data flow also it is larger in size with a lot of memory(92K B) in comparison of React. React on the other hand works on Virtual DOM which is a lightweight copy of a Real DOM size(46KB) of React is smaller than Angular.
- **Downloads:** Everywhere popularity of react is better and is having more downloads as compared to angular where angular is a complete framework with all the functionalities needed by users or developers.
- **SEO:** React provides relatively better SEO in comparison with angular.
- **Binding:** React.js has 2-way binding data property and Angular.js has 1-way binding property
- **Type Script vs JavaScript /Flow :** React uses JavaScript, a dynamically-typed language (which means you don't have to define the variable's type). Because many developers already know and love JavaScript, this can be seen as a pro. Conversely, Angular uses Typescript which is old and not favored that much by the users or developers

IV. ADVANTAGES OF REACT

React is a JavaScript library used to build reusable UI components and open sourced by Facebook. Reasons for choosing react as the front end development are :

- React is easy to learn as we can quickly build things.
- React helps to build a rich interface.
- React provides faster development and can be used to earn money faster too.
- React is trusted by great companies and all these companies use React to build their websites. One of the well known companies like Netflix prefers to use React.
- It has got strong community support and the number of downloads exceeds Angular.
- It is one of the trending topics and everyone is keen on the development too.

V. THE VIRTUAL DOM IN REACT

The DOM has a tree like structure and changes on top may affect the bottom and this will create a problem on giving delay to UI responses and affecting the user experience. Also some manipulations in DOM do a job on increasing the web app's performance regardless of how fast the client platform and the JavaScript engine is and these manipulations are extremely useful. React solves the problem with a layer of the Virtual DOM between the user layer and actual DOM fortunately. The Virtual DOM is a virtual representation of the DOM and rather than staying on the screen, it stays on the memory. The changes made on the Virtual DOM is taken care by an algorithm which is made and determines which changes must have to be made to the real DOM and, thus, the user's screen. Virtual DOM absorbs any changes to the DOM and keeps them in memory. The algorithm then detects on which component the change was made and updates that part of the DOM. This change will be reflected on the user's screen without disturbing the other components.

VI. CONCLUSION

This paper examined the use of react is primary for the front end technologies and for the creation of web applications. The front end frameworks React and Angular were compared and React was definitely a better choice. It has Good number of downloads, Better SEO and better binding. But React doesn't implement MVC and also is not having a complete structure, hence it need to import libraries for state and model. Further Angular is having a good structure and applications having dynamic content are better suitable with angular.js.



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