

Introduction to ReactJS

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Abstract: ReactJs is a front–end library developed by Facebook. It is used for handling the view layer for web and mobile applications. ReactJS allows creating reusable user interface components. It is currently one of the most popular JavaScript libraries and has a strong foundation and large community behind it. ReactJS is a declarative, efficient and flexible JavaScript library for building user interface. In model view controller architecture, React is the view which is responsible for how app looks and feels. React handles DOM gracefully, it composes complex UIs from small and isolated pieces of code called component.

Keyword: ReactJS, JavaScript, User interface, Component.

I. INTRODUCTION

As technology changes in the web development ReactJS become the one of the most popular JavaScript library to create web application. ReactJS is a JavaScript library to create for building fast and interactive user interface for the web as well as mobile applications [1]. It is an open-source reusable component based front end library. It is utilized as the view in the Model-View-Controller (MVC) [6]. ReactJS application is made up of multiple components, each component responsible for outputting a small, reusable piece of HTML code [5]. ReactJS uses virtual DOM based mechanism to fill data in HTML DOM. The Virtual DOM works fast as it only changes individual DOM elements instead of reloading complete DOM every Time [2].

II. FEATURES

JSX - JavaScript Syntax Extension

JSX is a syntax extension to JavaScript. It is used with React to describe what the user interface should look like. By using JSX, we can write HTML structures in the same file that contains JavaScript code. This makes the code easier to understand and debug, as it avoids the usage of complex JavaScript DOM structures.

Virtual DOM

React keeps a lightweight representation of the real DOM in the memory, and that is known as the virtual DOM (VDOM). Manipulating real DOM is much slower than manipulating VDOM because nothing gets drawn on the screen. When the state of an object changes, VDOM changes only object in the real DOM instead of updating all of the objects. DOM (Document Object Model) treats an XML or HTML document as a tree structure in which each node is an object representing a part of the document. When the state of an object changes in a React application, VDOM gets updated. It then compares its previous state and then updates only those objects in the real DOM instead of updating all of the objects. This makes things moves fast, especially when compared to other front-end technologies that have to update each object even if only a single object changes in the web application.

Performance

React uses VDOM, which makes the web applications run much faster than those developed with alternate front-end frameworks. React breaks a complex user interface into individual components, allowing multiple users to work on each component simultaneously, there by speeding up the development time.

Extension

React goes beyond simple UI design and has many extensions that offer complete application architecture support. I provides server-side rendering, which entails rendering a normally client-side only web application on the server, and then sends a fully rendered page to the client. It also employs Flux and Redux extensively in web application development. Finally, there is React Native, a popular framework derived from React, used to create cross-compatible mobile applications.

One-way Data Binding

React one-way data binding keeps everything modular and fast. A unidirectional data flow means that when a developer designs a React app, they often nest child components within parent components. This way, a developer knows where and when an error occurs, giving them better control of the whole web application.

Debugging

React application are easy to test due to a large developer community. Facebook even provides a small browser extension that makes a React debugging faster and easier. This extension, for example, adds tab in the developer tools option within the chrome web browser. The tab makes it easy to inspect React components directly.

Components

Components are the building blocks of any React applications, and a single app usually consist of multiple components. A component is essentially a piece of the user interface. React splits the UI into independent, reusable parts that can be processed separately.

State

The state is built-in React object that is used to contain data about the component. A components state can change over time whenever it changes, the component re-renders. The change in state can happen as a response to user action, and these changes determine the behavior of the component and how it will render.

Props

Props are short for properties. It is a React built-in object which stores the value of tags attributes and works similar to the

HTML attributes. It provides a way to pass data from one component to other components in the same way as arguments are passed in function.

III. LIMITATIONS

There are some limitations to ReactJS that should be considered before using it for any project creation. These are, Just the substance of the view in the React is in charge of the MVC [4]. As a result, additional tooling is required to complete the project. Creation of a project inline formats and JSX are used. In certain situations, the outcome is highly unpredictable.

IV. CONCLUSION

ReactJS is a very new, but also established library to make reusable view components which are encapsulated, sharable and easy to maintain. React JS has come at a great time assisting the developers to construct noticeably attractive web apps and consumer interfaces inside brief time. It allows break down the additives and create single web page software with less coding.

REFERENCES

- [1]. https://www.kirupa.com/react/simple_todo_app_react.htm
- [2]. <https://pmuens.medium.com/what-is-react-js>
- [3]. <https://www.mindinventory.com/blog/why-reactjs-gained-spotlight-amongst-developers/>
- [4]. Preeti Yadav, Bhupender Singh, A comparative study of versions of JavaScript, International Journal of Computational Intelligence Research ISSN 0973-1873 Volume 13, Number 8 (2017), pp. 2065-2073.
- [5]. <https://www.javatpoint.com/react-introduction>
- [6]. Archana Bhalla¹, Shivangi Garg², Priyangi Singh³, present day web-development using reactjs, International Research Journal of Engineering and Technology (IRJET), Volume: 07 Issue: 05 | May 2020