Developing An Ecommerce Platform for Farmers using React.js and its Analysis.

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ABSTRACT:

When it comes to software and application development one of the decisions is choosing the right frontend framework or library. The market offers a range of options due, to the challenges developers face on a daily basis. In the realm of frontend development react.js plays a role by creating opportunities for developers to build applications. This article explores how react.js contributes to the creation of applications and highlights its advantages in frontend development. With than 1500 developers and over 80,000 websites utilizing React.js for their web and mobile frontend development it's safe to say that React has a future. Notably renowned companies, like Amazon and PayPal rely on this JavaScript based User Interface library for a part of their applications front end development. This paper analyzes the features offered by React.js. Compares its benefits with other frameworks.

Introduction:

React.js is an open-source front-end JavaScript library for developing UI or UI components. It is maintained from Facebook and a set of individual developers and companies. React can be used as a base in single page or android app development. However, React only deals with state management and provide that state to the documented object model, so React app development typically requires using additional routing libraries as well as certain client-side functions. React JS is open-source A JavaScript library designed at Facebook by Jordan Walked and Software Engineer in 2011, but released for to the public in the month of May 2013. The main goal of React.JS is to provide better performance analysis. His strength comes from focusing on individual components. Using a recyclable unit was found to be easy to develop developers to design a rich user interface. React.JS contains the View part of the M-V-C (Model View-Controller) model. React JS implements a one-way data flow, so it's simpler than the old data binding. React uses virtual the document object model offers less demanding programming with fast execution.

INSTALLATION:

React.JS can be installed on various operating systems like Macintosh, Microsoft Windows, Unix, etc. Node.JS & NPM is one of the principles required to develop any React.JS application. Node.JS and NPM package manager can be installed Considering the current version of React.JS 17.0 launched on August 20, 2020, below are some steps to install and create a responsive application.

1. Open a command window and install React. we use the NPM install command to create the react application
2. We use the command NPX create respond app to design the React JS project
3. And finally, we use the NPM Start command to start the project.

Node Package Manager is a package manager that enables the server and runs the application on the default server.

ARCHITECTURE:

1. **React Virtual DOM** – Some manipulations in the DOM increase the performance of the web application no matter how fast the client platform and JavaScript engine and these manipulations are extremely   useful. The DOM has a tree structure and changes at the top can affect the bottom, creating a complications related to delaying UI responses and affecting the user experience are addressed by React.js Complications with a virtual DOM layer between the user layer and the real DOM ,Favorably. Virtual HOME is a virtual representation of the DOM and instead of staying on the screen it stays in memory. The changes made to the virtual DOM are taken care of by an algorithm that makes and determines which changes it must be done on the actual DOM and thus on the user's screen. The virtual DOM will absorb any modification DOM and stores them in memory. The algorithm then indicates on which element the modification was made and update this DOM segment. This change will be emulated on the user's screen without being disrupted   other elements.

2. **One-way data flow** – React JS is built in such a way that data flow is enabled Ie. supported. Unidirectional streams ensure that data flows in one direction throughout the application it offers greater control between states and models in the application. Unidirectional flows also ensure this the architecture of the application is less complicated and understandable. It does not perform any cascading adjustments and pupation in par view.

3. **React Components** - Build wrapped items that manage their own state and then build them into production complex UI. Because item logic is written in JavaScript instead of templates, you can efficiently pass rich data through your application and keep state outside of the DOM.

4. **Syntax JSX** - Abbreviation for JavaScript XML. It is a syntax extension in JavaScript. It is recommended to use JSX with React. JS for drawing and creating UI. JSX is fast, safe, and simpler because the JSX source code is compile to JavaScript and shows a much better result. Analysis to equivalent code written in JavaScript, the quality of the application is much higher when it is developed with JSX. At the heart of every basic web page is HTML documents. Web browsers narrate these documents and display them on your computer, tablet or phone as website. During this action, the browser creates something called the Document Object Model (DOM) displayed tree, how the website is organized. Developers can then add a dynamic essence to their projects by changing DOM with languages like JavaScript. JSX is an extension of React.js that makes it easier for web developers modify their DOM using simple HTML-style code. And because React.JS browser support is being extended to all current sites browser JSX is consistent with whatever browser platform you may be working with. This is not just a folder accommodation, although using JSX to update the DOM leads to subsequent improvements to the site and development ability.

5. **5.Component**: Components are the building blocks of a React application. They can be as simple as a button or as complex as an entire form or page. React supports the creation of small, self-contained components that are responsible for rendering part of the user interface.

6. **6.Lifecycle Methods**: React components have lifecycle methods that allow you to perform actions at specific points in the component's lifetime, such as when the component is first created (componentDidMount), when it's about to be updated (componentWillUpdate), or when it's about to be removed from the DOM (componentWillUnmount). These methods are useful for managing side effects such as loading data or interacting with external libraries.

7. **7.Router (React Router):** Although not part of the core React library, React Router is a popular library for handling client-side routing in React applications. Allows you to navigate between different views or components based on a URL.

    React architecture facilitates the creation of modular, maintainable and efficient user interfaces. It is widely used in web development to build interactive and dynamic applications.

- **Learning** - Angular is a complete framework that requires a lot of learning and requires developers to: Please try harder. For advanced topics, you should learn things like change detection. On the other hand, React.Js , Since it's just a library, it has fewer topics and is easier to learn than Angular. React uses JSX (JavaScript XML) is a format for writing HTML in JavaScript. React provides flexibility and allows developers to: Use this to learn quickly.

- **Server-side rendering** is a more important advantage for some React.js functionality using Axios and the like. On the other hand, connecting to the server using Angular.js is a bit more difficult. Components - Angular runs on a real DOM. Angular follows two-way data flow, but is larger in size. Its memory (92 KB) is more compared to React. React, on the other hand, operates on a virtual DOM. React weights iteration with actual DOM size (46KB) smaller than Angular.

- **Downloads:** – React Popularity is worldwide, with huge downloads tied with Angular It is a complete framework with all the functionality a user or developer needs.

- **SEO** - Fairly good SEO related to Angular.
    Binding - React.js has two-way commit data features, while Angular.js has one-way commit features.

- **TypeScript and JavaScript/Flow** - React uses JavaScript. Because many developers have known and loved it for a long time, JavaScript, which is considered professional. On the contrary, Angular uses Typescript, which is old and not popular. A lot depends on the user and the developer

LIMITATIONS:

React JS seems to be the best JavaScript library but it has few obstacles A. React only contracts with View from MVC, so other tools are needed to complete backend development Both.

b) Aspiring developers complain that JSX programming is at the learning stage and is considered a hindrance.

C. It reacts to changes in the environment very quickly, so developers often have difficulty in accepting new changes. Learn them again and apply them. Developers must constantly update their skills and knowledge Changes made to the React.JS environment.

CONCLUSION:

The purpose of this article is to focus on how and why React JS libraries are essential for developers. Society and organization. Facebook developed React JS for its own ambitions and then open sourced it.2013. Since then, in a very short span of time, React.

JS has gained incredible popularity among developers and technologists. industry React.JS has few limitations, but React.JS is completely revolutionary. New import Dimensions in the development of web applications, customer needs are rapidly increasing and evolving. React.JS.React.JS accelerates the compatibility of your application and makes React.JS more useful.

It is worth the effort. React.JS has everything to fulfill the requirements of today's world. So it is possible He said React.JS has features that influence modern web development. This article examines the use of react Its main use is for modeling front-end technologies and web applications. front frame

React and Angular were opposites and React was clearly the better solution. React is explored in detail and Its advantages and disadvantages are also mentioned.

The selection criteria of a particular framework can be clearly understood, In most cases, you should choose react. It allows developers to interact with virtual environments. Much faster and more user-friendly than a real browser (DOM). Apart from that, it offers simple functionality Interactive UI design, JSX support, sequencebased design and more. The above factors make it a suitable option for startups and companies.

React's popularity and active community ensure plenty of resources, third-party libraries, and tools to aid development. This, along with its versatility, makes React.js an invaluable asset for front-end developers and a key technology for building responsive, dynamic, and engaging web applications.

Introducing React Hooks brings functional components to the forefront, simplifies component state management and side effects, and further improves library usability. In addition, React's Context API enables global state management, and libraries such as React Router provide comprehensive client-side routing solutions.

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