Saturday, 2 September 2023

React Js Intro

ReactJS, often simply referred to as React, is an open-source JavaScript library primarily used for building user interfaces (UIs) and user experiences (UX) in web applications and Single page applications. It was developed and is maintained by Facebook, and it has gained widespread popularity within the web development community.

Key features and concepts of React include:

1**. Component-Based**: React applications are structured around the concept of reusable components. A component is a self-contained, modular unit of code that encapsulates a part of the user interface. These components can be composed together to build complex UIs.

2. Virtual DOM: React uses a virtual representation of the DOM (Document Object Model), known as the Virtual DOM. Instead of directly manipulating the actual DOM elements, React updates this virtual representation and then calculates the most efficient way to update the real DOM. This approach minimizes the number of actual DOM manipulations, which can be resource-intensive.

3. JSX (JavaScript XML): React uses JSX, which is a syntax extension for JavaScript. JSX allows developers to write HTML-like code within JavaScript, making it easier to describe the UI components.

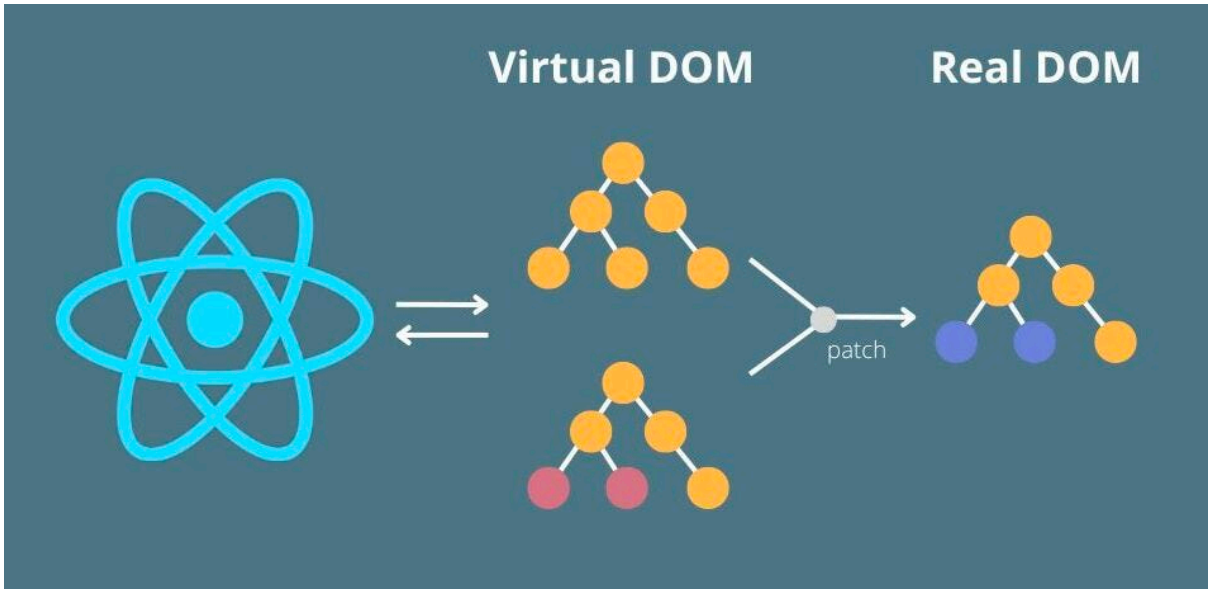
React is often used in combination with other libraries and tools, such as React Router for handling routing in single-page applications (SPAs) and Redux for managing application state in a predictable way.

React has a vibrant ecosystem, a strong community, and extensive documentation, making it a popular choice for building interactive and dynamic web applications. It can also be used in conjunction with React Native to develop mobile applications for iOS and Android platforms using the same component-based approach.

Virtual DOM in React:

The Virtual DOM (VDOM) is a concept in React that represents a virtual or in-memory copy of the actual Document Object Model (DOM) of a web page.

It's a lightweight and efficient abstraction of the real DOM. The Virtual DOM is used to optimise the process of updating the UI in response to changes in a React application. Manipulating the real DOM can be slow and costly in terms of performance, especially when dealing with frequent updates.



How the Virtual DOM Works:

- When a component's state or props change, React creates a new virtual DOM tree.
- React then compares this new virtual DOM tree with the previous one (the state before the update).
- It calculates the differences between the two trees, a process known as "reconciliation."
- These differences, or "diffs," are the minimal set of changes required to update the real DOM.