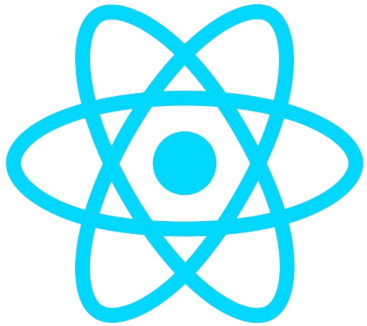


An Introduction to ReactJS

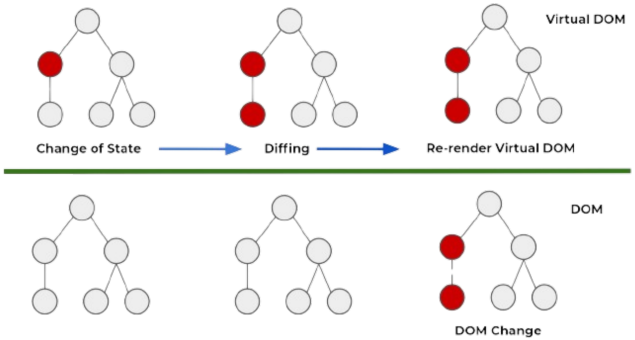
What is React?

- React is a Javascript framework that focuses on declarative syntax and virtualization of DOM.
- It is an open-source Javascript library, Developed by Meta in 2013.
- It provides a declarative and efficient way to create interactive UI components.
- It allows building more reusable and maintainable UI components with ease.

Why React?

Virtual DOM

- A Virtual DOM is a lightweight copy of the real DOM.
- Traditionally, only way to change content dynamically on web was to manipulate the real DOM.
- React's virtual DOM allows for efficient updates and selective rendering, resulting in faster and smoother user experiences.

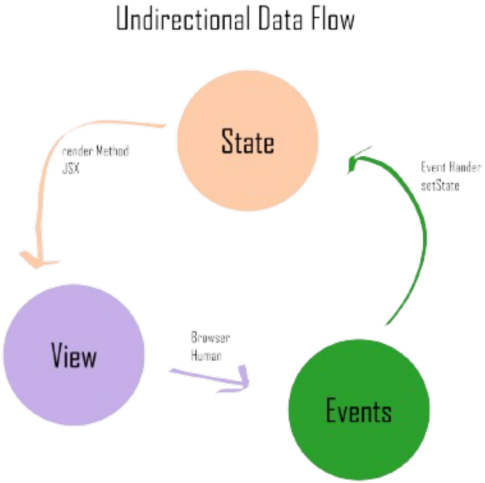


Why React?

- **Component-based Architecture**
  - ReactJS follows a component-based architecture, where UIs are divided into reusable components.
  - Traditional web development often involves a mix of HTML, CSS, and JavaScript, leading to tightly coupled code.
  - React's component-based approach promotes modularity, reusability, and easier maintenance of code.

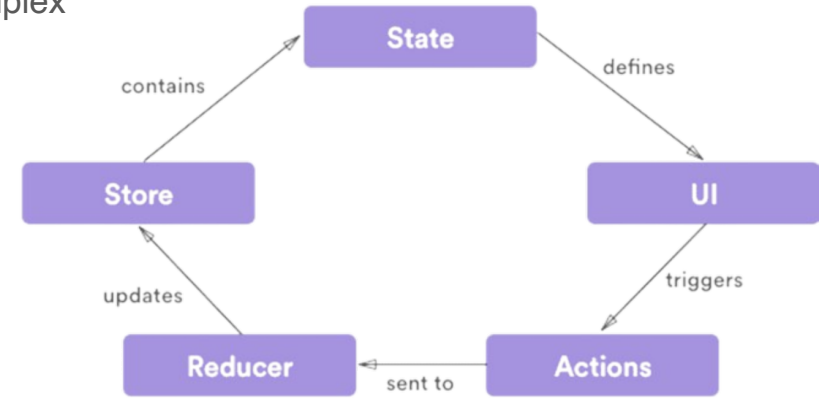
Why React?

- **Unidirectional Data Flow**
  - ReactJS enforces a unidirectional data flow, also known as one-way binding.
  - Traditional web development often involves two-way data binding, where changes in one part of the application affect others, making it harder to track and manage data changes.
  - React's unidirectional data flow simplifies data management, reducing the likelihood of bugs and making the application easier to reason about.



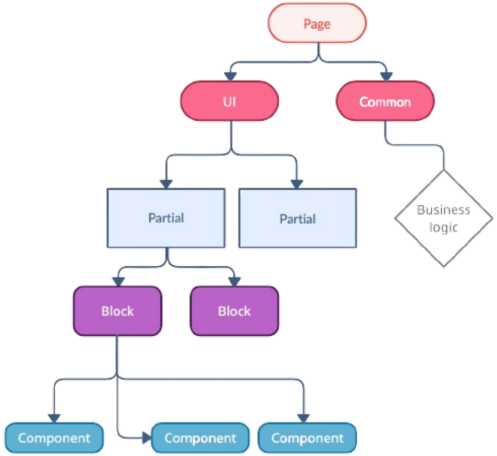
Why React?

- **State Management**
  - State management is a critical aspect of building complex web applications.
  - ReactJS provides several options for managing state Efficiently within its ecosystem.
  - Various ways of State Management:
    - Local Component State
      - useState
    - Context API
    - Redux



What is a React Component?

- ReactJS follows a component-based architecture, where UIs are composed of reusable building blocks called components.
- A React component is a JavaScript function or class that returns a JSX (JavaScript XML) representation of the UI.
- It encapsulates the UI logic and state, making it reusable and modular.
- React supports two ways of declaring a component-
  - Class Components
  - Functional Components



Structure of React Component

- **Props**
  - Props allow passing data from parent components to child components.
  - Props are read-only and should not be modified within the component.
- **State**
  - State represents the mutable data within a component.
  - State is typically managed within class components using the this.state object and the setState method.
  - Functional components can also have state using React hooks like useState.
- **Styling**
  - Styling can be applied to React components using CSS classes, inline styles, or CSS-in-JS libraries.
  - CSS classes can be added using the className attribute in JSX.
  - Inline styles can be applied using the style attribute in JSX.

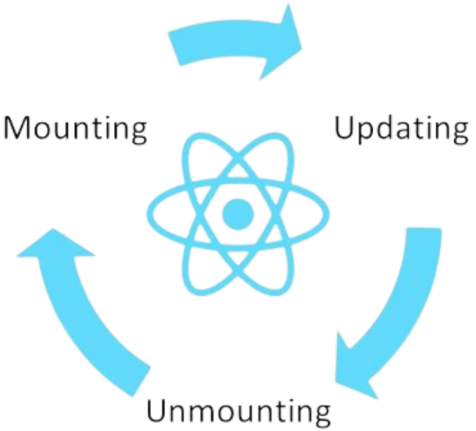
What is JSX?

- JSX (JavaScript XML) is a syntax extension for JavaScript used in React.
- JSX allows you to write HTML-like code within JavaScript, making it easier to create and manipulate the UI.
- JSX allows embedding JavaScript expressions within curly braces {}.
- JSX needs to be compiled into plain JavaScript to be understood by the browser.

```jsx
import React from 'react';

function MyComponent(props) {
  const title = 'Sample JSX Component';
  const handleClick = () => {
    console.log('Button clicked!');
  };

  return (
    <div className="my-component">
      <h1>{title}</h1>
      <p>Welcome to the world of JSX!</p>
      <button onClick={handleClick}>Click Me</button>
      <ul>
        {props.items.map((item, index) => (
          <li key={index}>{item}</li>
        ))}
      </ul>
    </div>
  );
}

export default MyComponent;
```

Component Life Cycle

- React components have a life cycle consisting of different phases and methods that are executed at specific times.
  - The mounting phase is when a new component is created and inserted into the DOM.
  - The updating phase is when the component updates or re-renders. This reaction is triggered when the props are updated or when the state is updated.
  - The last phase within a component's lifecycle is the unmounting phase, when the component is removed from the DOM.



Conclusion

- React is a powerful JavaScript library for building user interfaces.
- React's component-based architecture and efficient rendering make it a popular choice for front-end development.

THANK YOU