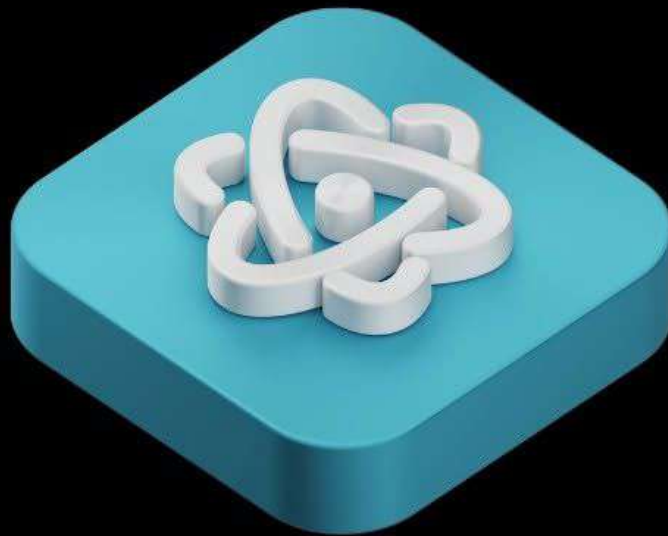# What Is
React?

WHAT IS REACT?

React is a JavaScript library for building user interfaces, especially for single-page applications. It enables developers to create reusable components that manage their own state and efficiently update the UI using a Virtual DOM.

Explanation with Examples:

Component-Based Architecture:

• React divides the UI into small, independent pieces called components.

```
function Welcome(props) {
  return <h1>Hello, {props.name}</h1>;
}
```

This Welcome component displays a greeting message, and you can reuse it with different names:

```
<Welcome name="Alice" />
<Welcome name="Bob" />
```

Virtual DOM:

React uses a Virtual DOM to efficiently manage updates. When a component's state changes, React compares the new Virtual DOM with the old one and updates only the necessary parts in the actual DOM.

```
function Counter() {
  const [count, setCount] = React.useState(0);

  return (
    <div>
      <p>You clicked {count} times</p>
      <button onClick={() => setCount(count + 1)}>Click me</button>
    </div>
  );
}
```

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JSX:

- JSX allows you to write HTML-like code within JavaScript, making it easier to design components.

```
function App() {
  return (
    <div>
      <h1>Welcome to My React App</h1>
      <p>This is a simple component.</p>
    </div>
  );
}
```

Unidirectional Data Flow:

• In React, data flows from parent components to child components, making the application predictable and easier to debug.

```
function ParentComponent() {
  const message = "Hello from Parent";

  return <ChildComponent message={message} />;
}

function ChildComponent(props) {
  return <h2>{props.message}</h2>;
}
```

The **ParentComponent** passes the **message** to **ChildComponent,** demonstrating unidirectional data flow.

React's approach to building UIs with reusable components, efficient updates via the Virtual DOM, and clear data flow makes it a powerful tool for developing dynamic, interactive web applications.

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WAS THIS
HELPFUL?

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