

MASTER MERN (React-1)

CONTENTS

- REACT JS

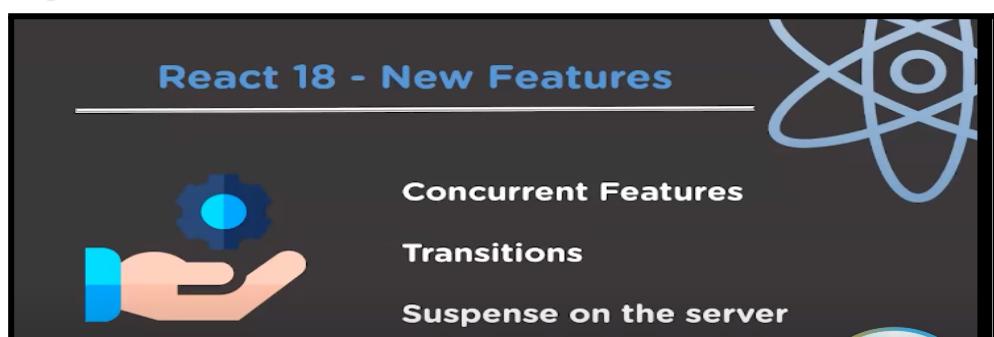
REACT JS

Section

1. React Fundamentals

React Fundamentals

- **What is the current Version of React ?**
→ The current version of react is "18". The update came in around 2022.
- **What are the new features added in the latest React Version ?**
→ React 18 has introduced numerous features such as an Introduction to a new root API, advanced automatic batching, responsiveness using start transition API, suspense SSR, and other distinct functionalities.



React 18 - Improvement



Automatic Batching

Better Rendering

Performance



Automatic Batching

1. Automatic Batching

2. Transitions
3. Suspense on the Server
4. Concurrent React

All state modifications made using event handlers are grouped together using React's built-in batching functionality

```
function handleClick() {  
  setIsFetching(false);  
  setError(null);  
  setFormStatus('Success');  
}
```

Transition

1. Automatic Batching

2. Transitions

3. Suspense on the Server
4. Concurrent React

A transition is a new concept in React to distinguish between urgent and non-urgent updates

- **Urgent updates**
- **Transition updates**

```
// Urgent: Show what was typed  
setInputValue(input);  
  
//Mark any state updates inside as transitions  
startTransitions(() => {  
  // Transition: Show the results  
  setSearchQuery(input);  
});
```



1. Automatic Batching

2. Transitions

3. Suspense on the Server

4. Concurrent React

The react suspense is quite helpful since it provides a calm loading state while the user is dealing with a network conflict

```
function food() {
  const [data, setData] = useState();
  const [isLoading, setIsLoading] = useState(true);
  useEffect(() => [
    setIsLoading(true),
    fetchItems().then((list) => {
      setData(list);
      setIsLoading(false);
    })
  ]);
}
```

```
function FoodListSuspenseWrapper() {
  const specialPromiseResource = getSpecialPromiseToFetchItems();
  return (
    <Suspense fallback=<div>Loading Items</div>>
      <FoodList resource={specialPromiseResource} />
    </Suspense>
  )
}
```



1. Automatic Batching

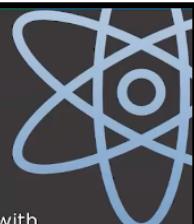
2. Transitions

3. Suspense on the Server

Concurrent React

4. Concurrent React

React can interrupt, pause, restart, or quit a render in React 18 with concurrent rendering. This enables React to react rapidly to user input even while it is engaged in a time-consuming rendering operation.



New Hooks

- **useId**
- **useTransition**
- **useDeferredValue**
- **useSyncExternalStore**
- **useInsertionEffect**

Client Side Changes

- **render -> createRoot**

```
1 import React from 'react';
2 import ReactDOM from 'react-dom';
3 import './index.css';
4 import App from './App';
5
6 ReactDOM.render(
7   <React.StrictMode>
8     | <App />
9   </React.StrictMode>,
10   document.getElementById('root')
11 );
```

Client Side Changes

- **UnmountComponentAtNode - > root.unmount**

```
// Function to unmount root component
function abc() {
  ReactDOM.unmountComponentAtNode(document.getElementById("root"));
}

// Function to unmount root component
function abc() {
  root.unmount[document.getElementById("root")];
}
```

Library Side Changes

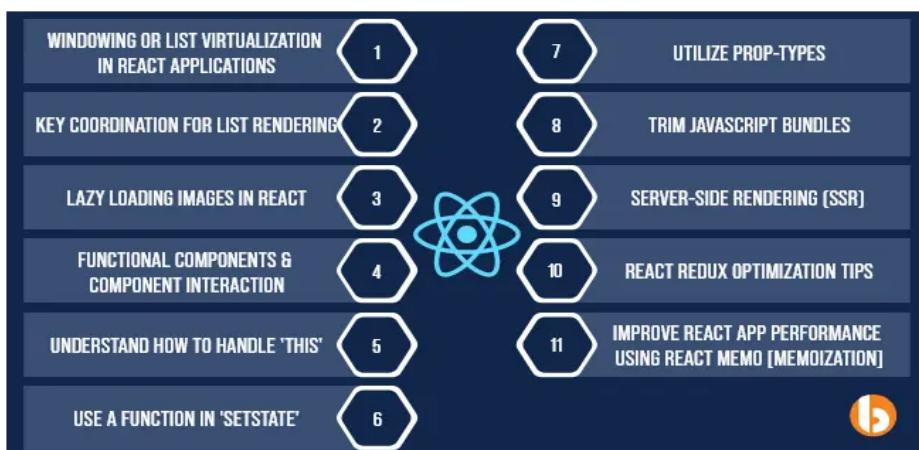
- **useId**
- **useSyncExternalStore**
- **useInsertionEffect**

- **What is the Use of React or What is React ?**

- React is a framework that employs Webpack to automatically compile React, JSX, and ES6 code while handling CSS file prefixes. React is a JavaScript-based UI development library. Although React is a library rather than a language, it is widely used in web development.
- Reasons for popularity of react these days -
 - Easy creation of dynamic applications
 - React uses Virtual DOM, thereby creating web applications faster. Virtual DOM compares the components' previous states and updates only the items in the Real DOM that were changed, instead of updating all of the components again, as conventional web applications do.
 - Reusable components: Components are the building blocks of any React application, and a single app usually consists of multiple components. These components have their logic and controls, and they can be reused throughout the application, which in turn dramatically reduces the application's development time.
 - Unidirectional data flow

- React is used for the development of web applications, but that's not all it can do. There is a framework called React Native, derived from React itself, that is hugely popular and is used for creating beautiful mobile applications.

- What are the ways to Optimise Performance in React ?



- For in depth details -
<https://www.bacancytechnology.com/blog/react-performance-optimization>

- Which are the libraries to be used while working on the React Project ?

- React Query
- Ant Design
- Zustand
- React Hook Form
- React Responsive

★ Note : Make sure to study these libraries as well in case you hadn't.

