React Syllabus one shot

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1. What is React?

React is a JavaScript library used for building user interfaces, particularly for single-page applications. It allows developers to create reusable UI components and efficiently update and render them as data changes.

2. Milestones of React?

- **2011:** Created by Jordan Walke at Facebook.
- **2013:** Open-sourced at JSConf US.
- **2015:** React Native launched.
- **2017:** Fiber (React 16) introduced.
- **2020:** React 17 released, focusing on backward compatibility.
- **2022+:** React grows with Suspense, Concurrent Mode, and more.

3. Why Use React?

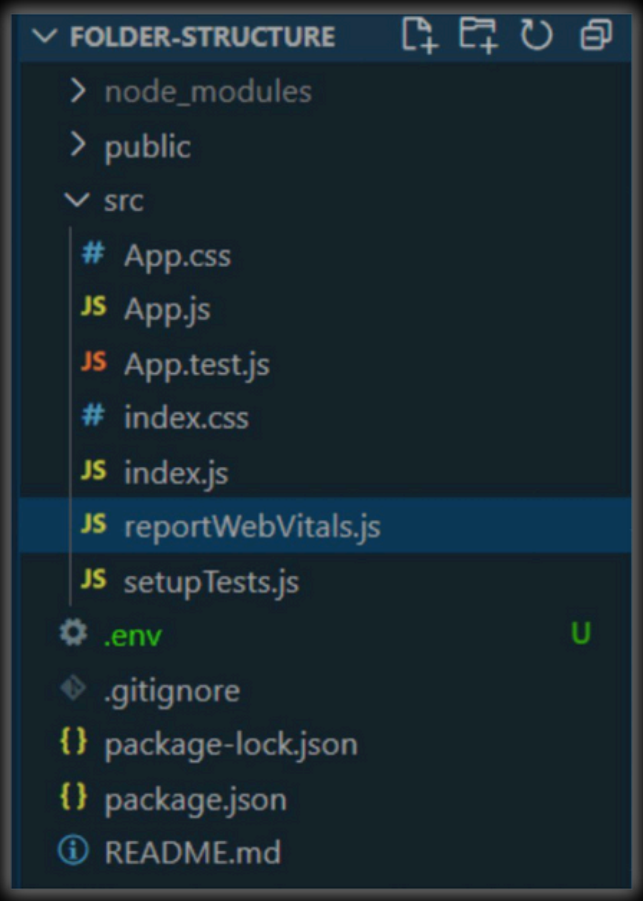
- Reusable Components: Simplifies development.
- Virtual DOM: Ensures fast updates.
- Community Support: Large ecosystem of libraries.
- Declarative: Focuses on what to do, not how to do it.

4. Why is React So Famous?

Backed by Facebook.
Excellent for dynamic web apps.
Strong developer tools like React DevTools.
Highly adaptable with libraries like Redux and Context API.

5. Folder Structure of React

src folder: Core app files (e.g., App.js, components, assets).
public folder: Static files (e.g., index.html).
node_modules: Installed npm packages.
package.json: App metadata and dependencies.



6. Setting and Installing Environment for React

- Install Node.js and npm.
- Run npm create vite@latest
- Navigate to the folder:
- Start development: npm start.

7. Import & Export

Import: Use import to bring modules into a file.
Example: import Component from './Component';
Export: Share code across files.
Example: export default Component;

8. Real DOM vs. Virtual DOM

- Real DOM: Updates the whole DOM tree.
- Virtual DOM: Updates only the changed elements, improving performance.

9. JSX

JSX (JavaScript XML) allows writing HTML-like syntax in JavaScript.
Example:
<h1>Hello, World!</h1>.
JSX is compiled to React.createElement calls.

10. Components

Body:
Functional Components: Written as functions (e.g., function
Component()).
Class Components: Use ES6 classes and support lifecycle methods.

11. CSS / Tailwind CSS / CSS Modules

- **CSS:** Standard styling language (e.g., style.css).
- **Tailwind CSS:** Utility-first CSS framework.
- **CSS Modules:** Scoped CSS for components (Component.module.css)

tailwind css

```
1  css
2  /* style.css */ button { color: blue; }
3  Tailwind CSS:
4  jsx
5  <button className="text-blue-500">Click Me</button>
6  CSS Modules:
7  jsx
8  import styles from './Button.module.css'; <button className=
   {styles.blueButton}>Click
9  Me</button>;
```

12. Conditional Rendering

Render elements based on conditions.
Example:

```tailwind css
{isLoggedIn ? <h1>Welcome Back!</h1> : <h1>Please Sign In</h1>}
```

13. Props

Props are arguments passed to components for dynamic data.
Example:

```tailwind css
function Greet(props) { return <h1>Hello, {props.name}!</h1>; } <Greet name="John" />;
```

14. Calling Function

Call functions on events like clicks.
Example:

```tailwind css
function handleClick() { alert("Button Clicked!"); } <button onClick={handleClick}>Click Me</button>;
```

15. React Router DOM

Routing library for navigation in React apps.
Example:

```tailwind css
import { BrowserRouter, Route, Link } from 'react-router-dom',
<BrowserRouter>
<Link to="/about">About</Link>
<Route path="/about" component={About} />
</BrowserRouter>;
Export
```

16. State - React Variable / Hooks

State holds dynamic data and can be updated using hooks like
useState.
Example:

```tailwind css
const [count, setCount] = useState(0);
<button onClick={() => setCount(count + 1)}>Count:
{count}</button>;
```

17. Events Handling / Forms

Capture user inputs and manage form submissions.
Example:

tailwind css

```
function handleSubmit(e)
{
e.preventDefault();
alert("Form Submitted!");
}
<form onSubmit={handleSubmit}>
<input type="text" placeholder="Enter name" />
<button type="submit">Submit</button> </form>;
```

18. List & Keys

Render lists using map() with unique keys.
Example:

tailwind css

```
const items = ["Apple", "Banana", "Cherry"];
<ul>{items.map((item, index) => <li key={index}>{item}</li>)}
</ul>;
```

19. Rendering JSON Data

Display JSON data by iterating over it.
Example

tailwind css

```
const items = ["Apple", "Banana", "Cherry"];
<ul>{items.map((item, index) => <li key={index}>{item}</li>)}
</ul>;
```

20. useEffect

Run side effects in functional components.
Example:

tailwind css

```
useEffect(() => {
  console.log("Component mounted!");
}, []);
```

21. Context API

Share state globally without pop drilling.
Example:

tailwind css

```
const UserContext = React.createContext();
<UserContext.Provider value="John">
  <App />
</UserContext.Provider>;
```

22. Fetching API

Retrieve data from an API using fetch or libraries like Axios
Example:

23. Deployment

Host your React app on platforms like **Vercel**, **Netlify**, or **GitHub Pages**.
Deploy to Vercel: Connect GitHub repository and deploy.
See More In React One Shot Tutorial