**Question 1: What is conditional rendering in React? How can you conditionally render elements in a React component?**

Conditional rendering in React refers to the ability to render different UI elements or components based on certain conditions — similar to how conditions work in regular JavaScript.

**💡 What is Conditional Rendering?**

In React, you often want to show or hide parts of the UI based on user actions, app state, or props. This is called *conditional rendering*.

**✅ How to Conditionally Render Elements in React**

There are several ways to conditionally render elements in React components:

**1. Using if Statements**

function Greeting(props) {

if (props.isLoggedIn) {

return <h1>Welcome back!</h1>;

}

return <h1>Please log in.</h1>;

}

2. **Using Ternary Operator (condition ? true : false)**

function Greeting(props) {

return (

<h1>{props.isLoggedIn ? 'Welcome back!' : 'Please log in.'}</h1>

)};

**3. Using Logical AND (&&) Operator**

This is useful when you only want to render something *if* a condition is true.

function Dashboard(props) {

return (

<div>

<h1>Dashboard</h1>

{props.isAdmin && <button>Delete User</button>}</div>

);

}

**4. Using switch Statements (for multiple conditions)**

function StatusMessage({ status }) {

switch (status) {

case 'loading':

return <p>Loading...</p>;

case 'success':

return <p>Data loaded!</p>;

case 'error':

return <p>Error loading data.</p>;

default:

return null;

}

}

**Question 2: Explain how if-else, ternary operators, and && (logical AND) are used in JSX for conditional rendering.**

Sure! Let's dive into how **if-else**, **ternary operators**, and **&& (logical AND)** are used in **JSX** for conditional rendering in React.

**🔹 1. if-else Statements in JSX**

**Usage:** Best for more complex logic, but it **cannot** be used directly inside JSX.

**✅ Correct Example:**

function Greeting(props) {

if (props.isLoggedIn) {

return <h1>Welcome back!</h1>;

} else {

return <h1>Please log in.</h1>;

}

}

if-else must be used **outside** the return() of JSX.

**2. Ternary Operator (condition ? true : false)**

**Usage:** Best for short, inline conditions **inside JSX**.

**✅ Example:**

function Greeting(props) {

return (

<h1>{props.isLoggedIn ? 'Welcome back!' : 'Please log in.'}</h1>

);

}

**With JSX blocks:**

function Greeting(props) {

return (

<>

{props.isLoggedIn ? (

<button>Logout</button>

) : (

<button>Login</button>

)}

</>

);

}

**🔹 3. Logical AND (&& Operator)**

**Usage:** When you only want to render something if the condition is true.

**✅ Example:**

function Dashboard(props) {

return (

<div>

<h1>Dashboard</h1>

{props.isAdmin && <button>Delete User</button>}

</div>

);

}

If props.isAdmin is true, the button will be rendered. If false, nothing is shown.