**1. Various Ways of Conditional Rendering in React**

React lets you **conditionally show/hide UI** based on logic. There are several ways:

**a) if-else inside function:**

if (isLoggedIn) {

return <Dashboard />;

} else {

return <Login />;

}

**b) Ternary operator:**

{isLoggedIn ? <Dashboard /> : <Login />}

**c) Logical && operator:**

{isAdmin && <AdminPanel />}

**d) Switch statement (for multiple cases):**

switch (role) {

case 'user': return <UserPage />;

case 'admin': return <AdminPage />;

default: return <HomePage />;

}

**2. How to Render Multiple Components**

Just include them inside a parent element like a div, <> (Fragment), or a proper container:

return (

<>

<Header />

<Sidebar />

<MainContent />

<Footer />

</>

);

If you're using a loop like .map(), you can render multiple components per iteration too.

**3. What is a List Component?**

A List Component in React is a component that renders a **list of items dynamically** using .map().

Example:

function BookList({ books }) {

return (

<ul>

{books.map((book) => (

<li key={book.id}>{book.title}</li>

))}

</ul>

);

}

Here, BookList is a list component that takes an array and renders each item.

**4. What are Keys in React? Why Are They Important?**

**Keys** are special props used to **uniquely identify elements** in a list. React uses keys to **track and optimize DOM updates**.

**Correct:**

{books.map(book => <li key={book.id}>{book.title}</li>)}

**Wrong (no key or using index):**

{books.map((book, index) => <li key={index}>{book.title}</li>)} // Not ideal

* Keys should be **unique and stable** (like book.id)
* Avoid using **array index as key** unless list never changes

**5. How to Extract Components with Keys**

When list items are **complex**, extract them into a separate component and still use the key where the component is used:

function BookItem({ book }) {

return <li>{book.title}</li>;

}

function BookList({ books }) {

return (

<ul>

{books.map((book) => (

<BookItem key={book.id} book={book} />

))}

</ul>

);

}

* key is used when you render the **component**, not inside it.

**6. React Map / map() Function**

.map() is a **JavaScript array method** used to transform each item in an array.

**In React:**

const names = ['Ram', 'Shyam', 'Seeta'];

return (

<ul>

{names.map((name, index) => (

<li key={index}>{name}</li>

))}

</ul>

);

* map() loops over array and returns JSX
* It’s commonly used to build UI from data (like cards, tables, etc.)