**Explain React Components**  
React components are reusable, independent pieces of code that return JSX elements to describe what should appear on the screen. They accept inputs called "props" and return a description of what the UI should look like at any given point in time.

**Identify the Differences Between Components and JavaScript Functions**

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| --- | --- |
| React Components | JavaScript Functions |
| Return JSX elements | Return any JavaScript value |
| Can have state and lifecycle methods | No built-in state or lifecycle |
| Rendered by React to create UI | Executed to perform operations |
| Can receive props as parameters | Receive regular function parameters |
| Must follow React naming conventions (PascalCase) | Follow standard JavaScript naming |
| Can use React hooks | Cannot use React hooks directly |

**Identify the Types of Components**

* **Functional Components**: Simple JavaScript functions that return JSX
* **Class Components**: ES6 classes that extend React.Component
* **Higher-Order Components (HOCs)**: Functions that take a component and return a new component
* **Pure Components**: Components that only re-render when props or state change

**Explain Class Component**  
Class components are ES6 classes that extend React.Component. They have access to state and lifecycle methods. They must implement a render() method that returns JSX.

**Explain Function Component**  
Function components are simple JavaScript functions that accept props as arguments and return JSX. They are simpler to write and test. With React Hooks, they can now handle state and lifecycle events.

**Define Component Constructor**  
The constructor is a special method in class components that runs when the component is first created. It's used to initialize the component's state and bind event handlers. It receives props as a parameter and must call super(props) before any other statements.

Purpose:

* Initialize component state
* Bind event handler methods
* Set up initial values

**Define render() Function**  
The render() method is a required method in class components that returns JSX elements describing what should be displayed on the screen. It should be pure (no side effects) and return the same output for the same inputs. It's called every time the component needs to update.

Requirements:

* Must return JSX or null
* Should be pure (no state changes)
* Called automatically by React when component updates