React Components - Concepts and Explanations

# 1. Explain React Components

React components are the building blocks of any React application. A component is a self-contained module that renders some output. They can be reused and composed to build complex user interfaces. Components can be either class-based or function-based.

# 2. Identify the Differences Between Components and JavaScript Functions

React components and JavaScript functions are similar in syntax but serve different purposes:  
  
- A JavaScript function performs a specific task and returns a value.  
- A React component returns JSX (React's syntax extension) that defines the UI.  
- React components can manage state and lifecycle methods (in class components).  
- JavaScript functions don’t have access to React features like hooks or state.

# 3. Identify the Types of Components

There are two main types of React components:  
  
1. Class Components:  
- ES6 classes that extend `React.Component`  
- Have access to lifecycle methods and state  
  
2. Function Components:  
- Simpler functions that return JSX  
- Can use Hooks (like useState, useEffect) to manage state and side-effects

# 4. Explain Class Component

A class component is a JavaScript class that extends `React.Component`. It must include a `render()` method that returns JSX. Class components can hold and manage local state and have access to lifecycle methods.  
  
Example:  
```  
class Welcome extends React.Component {  
 render() {  
 return <h1>Hello, {this.props.name}</h1>;  
 }  
}  
```

# 5. Explain Function Component

A function component is a plain JavaScript function that returns JSX. It can accept props as an argument. With the introduction of Hooks in React 16.8, function components can now also manage state and perform side effects.  
  
Example:  
```  
function Welcome(props) {  
 return <h1>Hello, {props.name}</h1>;  
}  
```

# 6. Define Component Constructor

The constructor is a special method used in class components to initialize local state and bind methods. It is called automatically when a component is created.  
  
Example:  
```  
constructor(props) {  
 super(props);  
 this.state = { count: 0 };  
}  
```

# 7. Define render() Function

The `render()` function is a required method in class components. It tells React what to display on the screen. It returns JSX, which gets converted to HTML elements in the browser.  
  
Example:  
```  
render() {  
 return <h1>Hello World</h1>;  
}  
```