**React Handson - 4**

**1. Explain the need and benefits of component lifecycle**

The **component lifecycle** in React defines the series of methods that are invoked in different stages of a component’s existence — from its creation to rendering and finally unmounting.

**Need:**

* React applications often require tasks like API calls, subscriptions, and resource cleanup.
* Lifecycle methods allow developers to hook into these key moments.

**Benefits:**

* Helps in managing side-effects like fetching data or timers.
* Improves code organization and readability.
* Ensures optimal performance through cleanup operations.
* Makes it easier to debug and trace component behavior.

**2. Identify various lifecycle hook methods**

Lifecycle methods in a **class component** are categorized into three phases:

* **Mounting Phase (Component is being inserted)**
  + constructor()
  + static getDerivedStateFromProps()
  + render()
  + componentDidMount()
* **Updating Phase (Props or state changes)**
  + static getDerivedStateFromProps()
  + shouldComponentUpdate()
  + render()
  + getSnapshotBeforeUpdate()
  + componentDidUpdate()
* **Unmounting Phase (Component is removed)**
  + componentWillUnmount()
* **Error Handling**
  + componentDidCatch()
  + getDerivedStateFromError()

**3. List the sequence of steps in rendering a component**

**Mounting sequence:**

1. constructor()
2. static getDerivedStateFromProps()
3. render()
4. componentDidMount()

**Updating sequence (on state/prop change):**

1. static getDerivedStateFromProps()
2. shouldComponentUpdate()
3. render()
4. getSnapshotBeforeUpdate()
5. componentDidUpdate()

**Unmounting:**

1. componentWillUnmount()

**Error handling (if error occurs in render or lifecycle):**

1. componentDidCatch()
2. getDerivedStateFromError()

**4.codes**

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**5.Output**

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