**ReactJS Lab 4 – Assignment Answers**

**1. Explain the need and Benefits of component life cycle**  
React components go through different phases: mounting, updating, and unmounting. The **component lifecycle** gives us hooks to run code at specific times.

* **Need:** To perform actions like fetching data, manipulating the DOM, or cleaning up resources at the right time.
* **Benefits:**
  + Better control over data fetching and resource management.
  + Improved performance and maintainability.
  + Easier debugging and predictable behavior.

**2. Identify various life cycle hook methods**  
Common lifecycle methods in class components:

* **constructor()** – Initialize state and bind methods.
* **render()** – Returns JSX to display UI.
* **componentDidMount()** – Called once after the component mounts, ideal for data fetching.
* **componentDidUpdate()** – Runs after updates to props or state.
* **componentWillUnmount()** – Cleanup before the component is removed.
* **componentDidCatch()** – Catches errors in rendering and lifecycle methods of child components.

**3. List the sequence of steps in rendering a component**  
When a component is mounted:

1. **constructor()** is called to set up initial state.
2. **render()** is called to return JSX.
3. React updates the DOM with the rendered output.
4. **componentDidMount()** is invoked after the output is rendered to the DOM.  
   If an error occurs in a child component during rendering or lifecycle, **componentDidCatch()** handles it.

These lifecycle methods help in efficiently managing side effects, API calls, and error boundaries within React class components.