

Lifecycle Methods (Class Components)

Question 1: What are lifecycle methods in React class components? Describe the phases of a component's lifecycle.

Ans.


In React class components, lifecycle methods are special methods that run at specific points during a component's life — from creation to removal. They let you control what happens when a component mounts, updates, or unmounts.

Think of a component like a human: born → grows → dies

What are Lifecycle Methods?

Lifecycle methods are predefined methods in class components that React automatically calls at different stages to:

- Initialize state
- Fetch data
- Respond to prop/state changes
- Clean up resources

 These methods are only for class components, not function components (hooks replace them).

Phases of a Component Lifecycle

A React class component has three main lifecycle phases:

1. Mounting Phase (Birth)

When the component is **created and inserted into the DOM**.

Methods in Mounting:

1. constructor()
 - Initialize state
 - Bind methods
2. render()
 - Returns JSX (UI)
 - Pure function (no side effects)
3. componentDidMount()
 - Called after component is rendered to the DOM
 - Best place for:
 - API calls
 - DOM manipulation
 - Subscriptions

2. Updating Phase (Growth)

When the component re-renders due to changes in props or state.

Methods in Updating:

1. render()
 - Re-renders UI
2. componentDidUpdate(prevProps, prevState)
 - Runs after update is committed to DOM
 - Used for:
 - API calls based on prop/state change
 - Conditional updates

3. Unmounting Phase (Death)

When the component is removed from the DOM.

Method in Unmounting:

1. `componentWillUnmount()`
 - Cleanup work:
 - Remove event listeners
 - Cancel timers
 - Unsubscribe from services

Lifecycle Flow (Simple Order)

Mounting:

`constructor` → `render` → `componentDidMount`

Updating:

`render` → `componentDidUpdate`

Unmounting:

`componentWillUnmount`

Question 2: Explain the purpose of `componentDidMount()`, `componentDidUpdate()`, and `componentWillUnmount()`.

Ans.

1. `componentDidMount()`

Purpose

Runs once after the component is mounted (inserted into the DOM).

Why it is used

- Fetch data from APIs
- Set up subscriptions
- Add event listeners
- DOM manipulation

Key Point

- ✓ Runs only one time
- ✓ Safe place for side effects

2. `componentDidUpdate(prevProps, prevState)`

Purpose

Runs after every update caused by props or state changes.

Why it is used

- Respond to prop/state changes
- Re-fetch data when values change
- Perform actions after DOM update

Important Rule ⚠

Always compare previous values, otherwise it may cause an infinite loop.

3. componentWillUnmount()

Purpose

Runs just before the component is removed from the DOM.

Why it is used

- Cleanup tasks
- Remove event listeners
- Clear timers
- Cancel subscriptions or API calls

Quick Comparison Table :

Method	When It Runs	Main Use
componentDidMount	After first render	API calls, setup
componentDidUpdate	After every update	Respond to changes
componentWillUnmount	Before removal	Cleanup
