

React Lifecycle CheatSheet

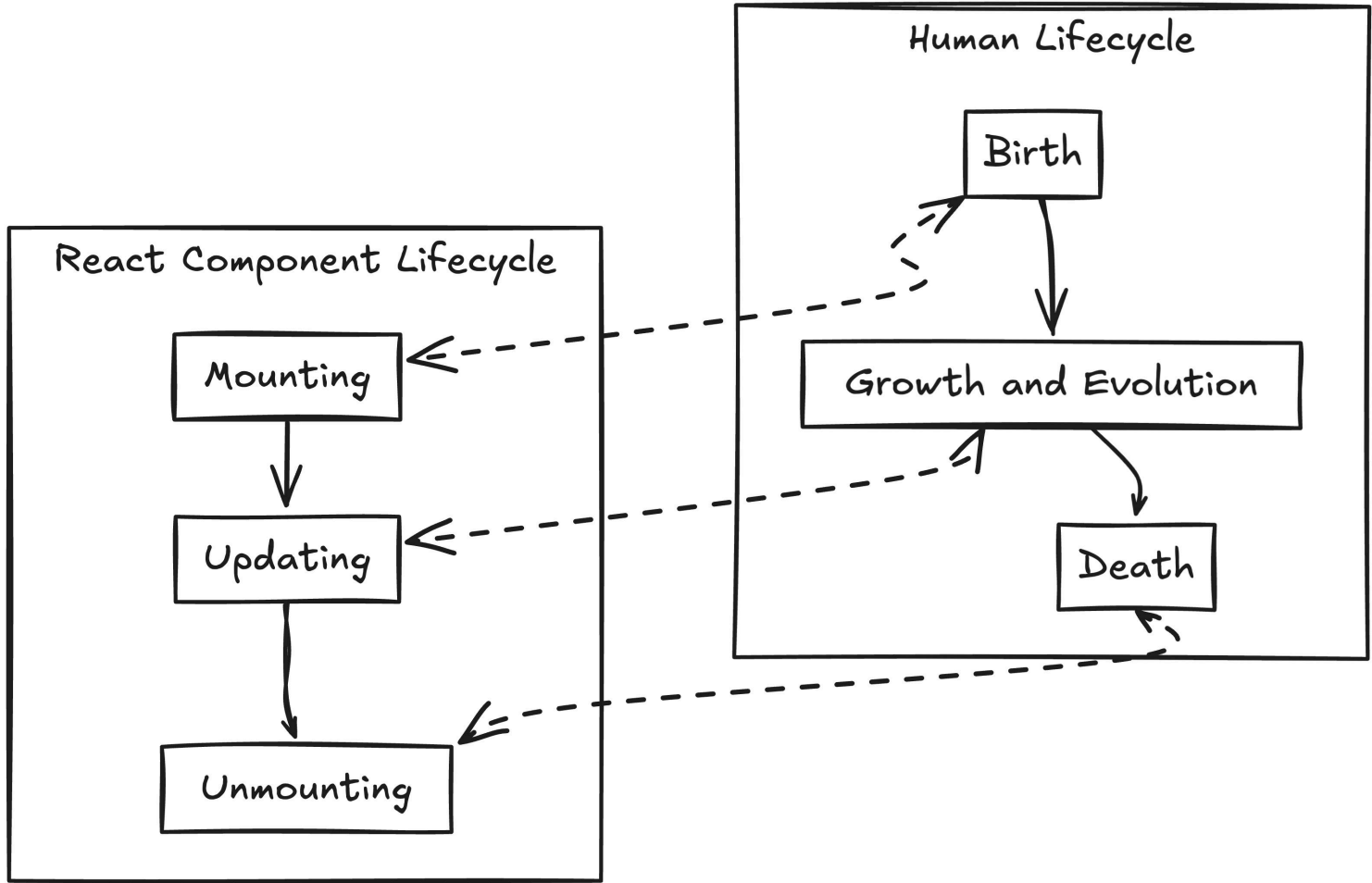
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Why Master the React Component Lifecycle?

- **Avoid inefficiencies:** Prevent infinite re-renders or memory leaks.
- **Optimize performance:** Manage re-renders smartly.
- **Improve effects:** Use `useEffect` and `useLayoutEffect` effectively.
- **Cleaner apps:** Always clean up unmounted components.

What is the React Component Lifecycle?

- React components follow 3 phases:
 - **Mounting:** When the component is created and added to the DOM.
 - **Updating:** When the component updates after state change.
 - **Unmounting:** When the component is removed from the DOM.



Updating (Evolving Phase)

Triggers:

- State change
- Context value updates
- Parent re-renders (if not memoized).
- Etc.

Key Steps:

1. **Re-render:** React recalculates the component's output.
2. **Reconciliation:** React compares the new tree with the previous one.
3. **Update DOM:** React updates the DOM with the changes.
4. **Unset DOM Refs:** React nullifies `ref.current` and calls non-stable ref callbacks with **null** if the referenced DOM node is removed or replaced during the update.
5. **Cleanup `useLayoutEffect`:** Runs cleanup functions for the previous layout effects.
6. **Set new DOM Refs:** Updates `useRef` with new values if applicable.
7. **Run new `useLayoutEffect`:** Executes layout effects (if deps changed).
8. **Paint the DOM:** Updates the UI visually.
9. **Cleanup then run `useEffect`:** Cleans up previous effects and executes them (only if deps changed).

Mounting (Birth Phase)

Trigger:

- React calls `root.render(<MyComponent />)` or adds a component to the JSX tree and re-renders its parent.

Key Steps:

1. **Render:** React calls the component function/render method to create React elements and initialises hooks.
2. **Insert DOM Nodes:** React updates the DOM with these elements.
3. **Set DOM Refs:** `useRef` values are set to reference DOM nodes.
4. **Run `useLayoutEffect`:** Happens before the browser paints the UI.
5. **Paint the DOM:** The browser renders the updated UI.
6. **Run `useEffect`:** Executes the `useEffect` functions.

Unmounting (Dying Phase)

Triggers

- Component removal from the JSX tree.
- Component's parent unmounting.
- Key changes causing a re-mount.

Key Steps:

- **Cleanup effects:** Executes cleanup in `useEffect` and `useLayoutEffect`.
- **Unset DOM Refs:** Nullifies `ref.current` values and calls ref callbacks with `null`.
- **Remove DOM Nodes:** React deletes DOM nodes associated with the component.