useEffect

- useEffect is a **React Hook** used to perform **side effects** in functional components.

Side Effects include: (React default work with pure function)

- API calls
- DOM manipulation
- Subscriptions or timers
- Updating document title, etc.

```
useEffect(() => {
    // your code here (side effect)
}, [dependencies]);
```

Explanation:

- Runs after the component renders.
- [] → Runs only once (like componentDidMount).
- [value] → Runs when value changes.
- No [] → Runs after **every render**.

Key Features:

- **Lifecycle Replacement:-**useEffect combines the functionality of componentDidMount, componentDidUpdate, and componentWillUnmount from class components.
- **Execution Timing:-**By default, useEffect runs after every render.
- **Dependency Array:-**The second argument to useEffect is an optional array of dependencies. The effect will only re-run if any of the dependencies change. An empty array [] will cause the effect to run only once after the initial render.
- **Rules**

- Call **only at top level**, not inside loops or conditions.
- Use **inside functional components** only.

useLayoutEffect

- **useLayoutEffect** is a React Hook, similar to useEffect, but it **runs synchronously after all DOM mutations and before the browser paints**. It's useful when you need to **measure DOM elements** or **apply styles before the user seen them**.

Syntax:

```
useLayoutEffect(() => {
    // your code
}, [dependencies])
```

Key Points:

- Runs **after DOM updates** but **before paint**
- Useful for **measuring layout** (e.g., width/height)
- Can cause **visual flickering** if misused
- Same API as useEffect

Difference between useEffect and useLayoutEffect

Feature	useEffect	useLayoutEffect
Timing	Runs after paint	Runs before paint
Blocking render	No	Yes (blocks browser paint)
Use case	Async tasks (API calls, logging)	DOM measurements, style changes
Performance	More performant	Less performant (synchronous)
UI flicker risk	Low	Can prevent flicker
Type	Asynchronous (non-blocking)	Synchronous (blocking)

Use useEffect for most tasks.

Use useLayoutEffect **only when you must block painting** to measure or adjust layout.