

# React useEffect - Full Student Friendly Guide

## 1. Why useEffect Exists?

React renders UI. But sometimes we need to perform actions AFTER rendering such as:

- Fetch API data
- Update document title
- Manage timers or intervals
- Handle subscriptions or event listeners
- Read/write LocalStorage
- Run code only when certain values change

This is the purpose of `useEffect`: for SIDE EFFECTS.

## 2. Visual Diagram - How useEffect Works



## 3. Example 1 — Updating title when count changes

```
useEffect(() => { document.title = `Clicked ${count} times` }, [count]);
```

## 4. Example 2 — Fetch API on Mount Only

```
useEffect(() => { fetch('/api/data') .then(res => res.json()) .then(data => setUsers(data)), []);
```

## 5. Example 3 — Timer Example with Cleanup

```
useEffect(() => { const timer = setInterval(() => { console.log("Timer running..."); }, 1000); return () => clearInterval(timer); }, []);
```

## 6. Example 4 — Detect Window Resize

```
useEffect(() => { const handleResize = () => {setWidth(window.innerWidth); }; window.addEventListener('resize', handleResize); return () => window.removeEventListener('resize', handleResize); }, []);
```

## 7. Example 5 — Save to LocalStorage on State Change

```
useEffect(() => { localStorage.setItem("theme", theme), [theme];});
```

## 8. Example 6 — Run Effect When Multiple Values Change

```
useEffect(() => { console.log("User or Token updated"); }, [user, token]);
```

## 9. Example 7 — Preventing Stale Data Using Functional Updates

```
useEffect(() => { setCount(prev => prev + 1); }, []);
```

## 10. Visual Diagram - Cleanup Function

Effect Runs ■ ▼ Cleanup (old effect removed) ■ ▼ Effect Runs Again

### Student Exercises (For Practice)

#### Exercise 1:

Create a component using `useEffect` to show the current time every second.

#### Exercise 2:

Create a component that fetches user data when the component loads.

#### Exercise 3:

Create a component that saves theme selection (dark/light) in LocalStorage.

#### Exercise 4:

Create a component that detects window scroll and prints scroll height.

#### Exercise 5:

What happens if we remove the dependency array? Explain in your own words.

### Quick Summary Table

Case	Runs When?
<code>useEffect(callback, [])</code>	Runs once (on mount)
<code>useEffect(callback)</code>	Runs on EVERY render
<code>useEffect(callback, [value])</code>	Runs only when value changes
Effect cleanup	Runs before next effect or on unmount