📚 Lecture 06: Hooks in React :

(Explained from First Principles — Simple se Start)

1️⃣ React me State ki zarurat kyun?

Socho aap ek website bana rahe ho jisme ek counter hai — button dabate hi number badhta ya ghatta hai.

- **Problem:** Agar hum ek simple variable `let count = 0` rakhen aur usko badlein, toh React ko pata nahi chalega ki ye value badli hai.
- Isliye **React ko pata hona chahiye ki data change hua** taaki wo UI (screen) ko update kar sake.

2️⃣ State kya hota hai?

- State matlab wo **data jo app ke andar time ke sath badalta hai**.
- Jaise counter ka value, user ka input, ya kisi button ka toggle state.
- React me state ko manage karna important hai taaki UI hamesha data ke hisaab se update ho.

3️⃣ Pehle React me state kaise manage karte the?

- Pehle React me state sirf **class components** me hota tha.
- `this.state` me data store karte the aur `this.setState()` se update karte the.
- Class components ka syntax thoda complicated hota tha, aur functional components me state nahi hoti thi.

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4 Hooks aur `useState` kya hai?

- React ne **Hooks** diye jo **functional components me bhi state aur lifecycle features dene ke liye hain**.
- `useState` sabse basic Hook hai jo functional component ke andar state variable banata hai aur usko update karne ka function deta hai.

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5 `useState` ka syntax samjho

```
const [state, setState] = useState(initialValue);
```

- `state` = current value of the data (e.g., count).
- `setState` = function jo state ko update karta hai.
- `initialValue` = starting value jo React state ko deta hai.

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6 `useState` kaise kaam karta hai? (Socho React engine kaise chal raha hai)

- Jab React component render hota hai, `useState` call hota hai.
- React internally ek jagah `state` ka value rakhta hai — wo **remember karta hai**.
- Jab `setState` call hota hai, React us state ko update karta hai aur component ko **dobara render** karta hai.
- Isliye humara UI **hamesha latest data dikhata hai**.

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7 Example: Counter

```
function Counter() {
  const [count, setCount] = useState(0);  // count ki initial value 0 hai

  function incrementNumber() {
    setCount(count + 1);  // count ko 1 badhao, React ko update karo
  }

  function decrementNumber() {
    setCount(count - 1);  // count ko 1 ghatayo
  }

  return (
    <div>
      <p>Count: {count}</p>  // screen pe count dikhao
      <button onClick={incrementNumber}>Increment</button>
      <button onClick={decrementNumber}>Decrement</button>
    </div>
  );
}
```

- Jab component render hota hai, `count` 0 hota hai.
- Button click karte hi `setCount` se React ko batate hain ki value badal gayi hai.
- React component ko re-render karta hai aur naya `count` dikhta hai.

8️⃣ Arrays aur Objects me state kaise update kare?

- React **reference check karta hai** state me changes ke liye.
- Agar aap **direct mutate** karte ho (jaise array me direct push karna), React ko pata nahi chalega ki state badla hai.
- Isliye hamesha **nayi copy** banakar update karna chahiye.

Arrays me update ka example:

```
const [items, setItems] = useState([1, 2, 3]);


function addItem() {
  setItems([...items, 4]);  // purane items ko spread karo aur naya item add karo
}
```

Objects me update ka example:

```
const [user, setUser] = useState({ name: 'Samsul', age: 25 });


function updateAge() {
  setUser({ ...user, age: 26 });  // pehle ke data ko spread karo aur age update karo
}
```

9️⃣ Pehle `useState` se related ek important baat:

- Agar aap state ko directly change karte ho bina `setState` ke, React re-render nahi karega.
- Isliye state update karna **hamesha** `setState` function ke through hona chahiye.

🔥 Tip for best practice:

- Agar aapka state update **pichle state pe depend karta hai**, toh functional update ka use karo:

```
setCount(prevCount => prevCount + 1);
```

Isse React ko current state milta hai aur safe update hota hai.

🔍 Summary (First Principles me samjha)

Point	Explanation
React UI kab update kare?	Jab data (state) change hota hai. React ko pata hona chahiye ki state badla hai.
State variable kya hai?	Wo value jo app ke andar time ke sath change hoti hai aur UI ko control karti hai.
`useState` ka role kya hai?	Functional component me state variable aur usko update karne wali function provide karta hai.
React re-render kaise hota hai?	Jab `setState` call hota hai tab React component ko dobara render karta hai.
Arrays & objects update kaise?	Direct mutate nahi, spread operator se nayi copy banao aur update karo.

🚀 Final thought:

`useState` ne React functional components ko **powerful** banaya, jisse hum simple functions me hi state manage kar sakte hain bina class ke jhanjhat ke.

Isliye, `useState` aur Hooks React development ka **dil** hain — jo aapko modern, clean, aur efficient code likhne me madad karte hain.