**1️⃣ What is Prop Drilling?**

**🔹 Definition**

Prop drilling is when you pass **data from a parent component down to deeply nested child components** through multiple layers of props, even if some intermediate components don’t use that data.

**🔹 Why it exists**

React data flows **one way** (top → down). Sometimes a deeply nested component needs data that only exists at the top level.

**🔹 Where it’s seen**

* Large apps with many nested components.
* Example: Passing user info from App → Layout → Sidebar → Profile.

**🔹 Answer**

Prop drilling = **manually passing props through many components** until it reaches the component that actually needs it.

**2️⃣ What is Lifting the State Up?**

**🔹 Definition**

“Lifting state up” means moving a piece of state to the **nearest common parent** so multiple child components can share it.

**🔹 Why it exists**

* Sometimes two components need to **sync** (share) the same data. If each has its own state, they get out of sync.

**🔹 Where it’s seen**

* Example: A SearchBar and a SearchResults both need the search text. Instead of keeping state in both, you keep it in the parent and pass it down.

**🔹 Answer**

Lifting state up = **moving state to a parent component** so that data can be passed consistently to multiple children.

**3️⃣ What are Context Provider and Context Consumer?**

**🔹 Definition**

* **Context** = React’s way to share data across the component tree without prop drilling.
* **Provider** = component that *provides* a value (data).
* **Consumer** = component that *reads* that value.

**🔹 Why it exists**

* To avoid prop drilling (don’t need to pass data manually through many layers).

**🔹 Where it’s used**

* Theme (dark/light), authentication (logged-in user), language (i18n), app-wide settings.

**🔹 Example**

A screen shot of a computer program

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**4️⃣ If you don’t pass a value to the provider, does it take the default value?**

**🔹 Definition**

Yes. When you create context → React.createContext(defaultValue) → that defaultValue is used **only if no Provider gives a value above in the tree**.

**🔹 Why it exists**

* Ensures components can still work even if no provider is used.

**🔹 Example**

A screen shot of a computer program

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✅ **Interview-ready summary**:

* *“Prop drilling is when props are passed through many components unnecessarily.”*
* *“Lifting state up means moving state to the nearest common parent so multiple children can share it.”*
* *“Context API solves prop drilling by letting us share data globally using a Provider and Consumer.”*
* *“If a Provider doesn’t pass a value, the context falls back to the default value defined in createContext.”*