[lecture- 5]

[let's get Hooked] Date.....

- All the source code of our app we will keep in src folder.
- Make a separate file for every component
- Try to name it exactly like would the name of the component
- Extension → .js , .jsx , .tsx → for typescript
- In my App.js we are using Header component Header.js , Header is no longer present in App.js so it will throw an error. we have to import header , but before we can import it we need to export this header component
- export default Header ;
- App.js → import Header from "./components/Header"

or

"./components/Header.jsx"

- Whenever we have hard coded data , never keep this in component file.
- We will keep in utility file separately

Utils

- utils → constants.js → we name it with small letters because it is not a component

utils → Folder

constants.js → File

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- constants.js →

```
const CDN_URL = ---

const LOGO_URL = ---
```

Snake case

- Utils → mockData.js

```
const reslist = [
  {
    -
    -
    -
    -
  }
]

export default reslist;
```

- Another way of exporting is named export
  " " " importing " " import
- When in a single file we have to export multiple things
  like in constant.js we have to export CDN_URL & LOGO_URL
- In one file we can only have one default export

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- Named export → we can just write export before variable & constants.

export const CDN_URL =

export const LOGO_URL=

- When we have to export multiple things from same file.
- Once we have used named export, so when we will import there will be a slight difference in importing.

we have to write curly braces in that we write what we want to import.

import {CDN_URL} from "../utils/constants";

and if CDN_URL was export default then we need not to write curly braces

import CDN_URL from "../utils/constants";

Src = {CDN_URL}

Type of export / import	(2) Named export
(1) Default export export default name of var/comp Import import Comp/var from "path"	export const Component/Variable Import import {comp/var} from "path"

Hover → onMouseOver

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Q.7 Can I use default export along with named export?

- It is a standard practice to not keep our file content more than 100 lines. So every file in our app should not exceed more than 100 lines if it is exceeding that means we can break it into different component & files.

- attribute → onClick (Event Handler) → It takes a callback fxn.

```
onClick={() => {}}
```

- When we say React is fast, it is fast in DOM manipulation. This is the exact problem that react is solving
- Suppose if we have keep our data & UI layer consistent with eachother that is a framework / library comes in the picture.
- React can do fast & efficient DOM Manipulation
- My UI should change according to the data.

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HOOK → utility function

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- List of Restaurant is normal variable now we will make it a State variable.
- for that we use react hook known as useState.
- Hook is a normal JS function which is given to us by React.
  The fxn comes with some superpowers, it has logic written behind the scenes inside react.
- They have written these utility fxn inside the React (node_modules)
- Two most important Hooks –
  (1) useState
  (2) useEffect
- useState – This is use to generate superpowerful State variables in react.

We have to import this as a named import

→ import {useState} from "react";

But we import React as default import

import React from "react";

- useState maintain the State of our component
- We are creating a local state variable inside Body component

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- Scope of listOfRestaurant is inside the body function/component, similarly a local state variable scope is inside that component

- When we will call this useState it will give us a state variable and how do we receive that variable, → inside an array

```
const [listOfRestaurants] = useState()
```

Whatever we will pass over here becomes the default value of this variable

→ useState([]) → empty

→ useState(null)

→ useState([{
    data: {
    }
}])

default value of one Restaurant

- If I have to modify the list of Restaurants, we will modify it by a fxn.

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- The fxn comes as the 2nd parameter in the array → setListOfRestaurant
  ↓
  we can name it as whatever wish to it's not necessary to write → setlistOfRestaurant
  it can be → setlist → it is also valid
  but it is a preferred convention in the industry if the name is listOfRestaurant put it setListOfRestaurant.

→ setListOfRestaurant is used to update the list.
→ we will pass the data inside it which needs to be pushed inside listOfRestaurant.

```
onClick={() => {
const filteredList = listOfRestaurants.filter
((res) => res.data.avgRating > 4);
setListOfRestaurant(filteredList)
}}
```

- Our superpowerful Variable keeps the UI in Sync with data layer.
- if this listOfRestaurant was a normal

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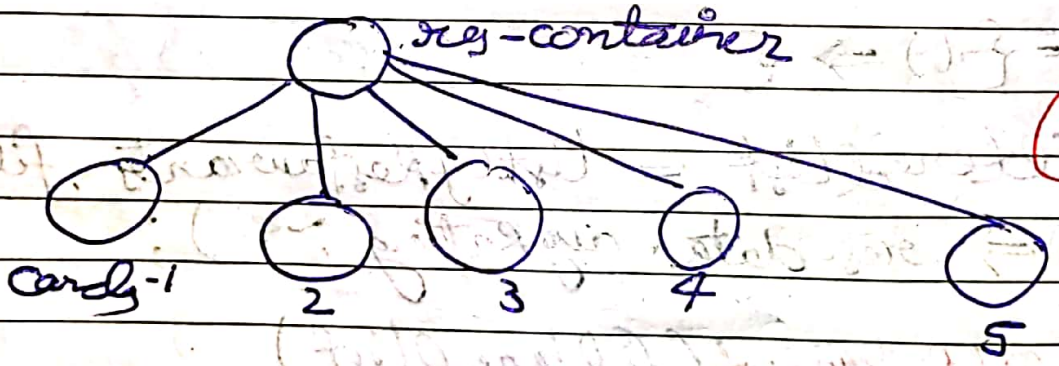
Variable, so if we will update it our UI does not update.

- This is known as Render.

Note → whenever State variable updates/changes React re-renders the component.

- React makes the DOM operations superfast this makes our app the fast.
- The logic of updating the UI is known as re-rendering, this is the superpower of React
- React uses Reconciliation Algorithm, also known as React fibre
- DOM is like tree



- Now my UI changes to filtering these 5 cards to 3 cards

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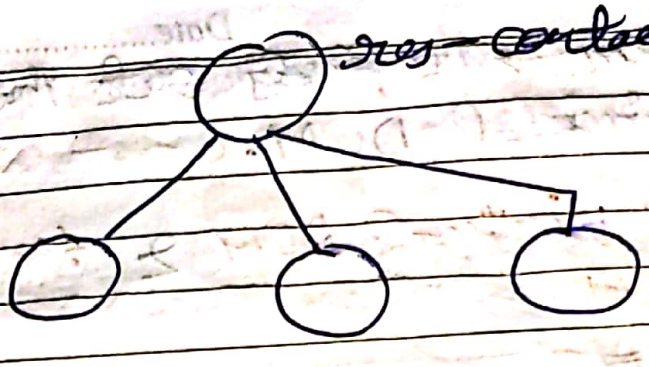

- Whenever we have (I) UI, react creates a virtual DOM of it.
- Virtual DOM is a representation of actual DOM.
- console.log(<Body/>)
  - ↳ This is virtual DOM
  - ↳ It will print an Object, (react Element)
- React Element is Object, similarly when we have big structure it is also an Object
- This Object is basically a react Virtual DOM.
- It keeps the React Virtual DOM with it
- Virtual DOM is normal JS Object.
- It is nested Object.
- Representation of actual DOM

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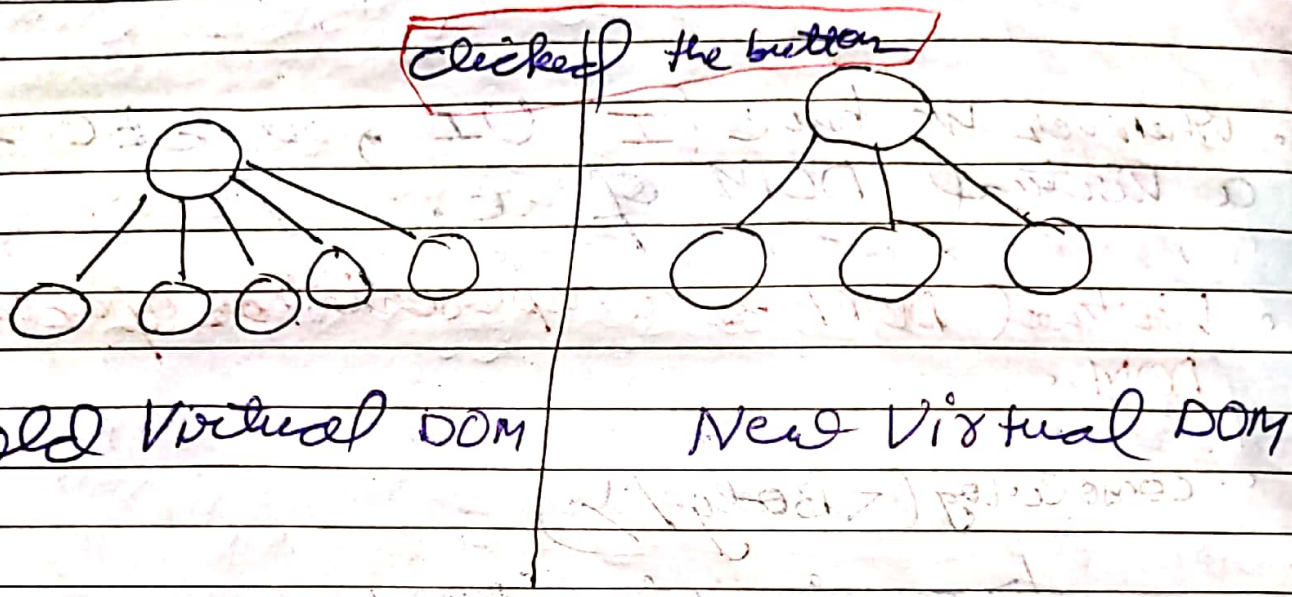
- Diff Algorithm → It finds out the difference bet^n two Virtual DOM.

The updated virtual DOM & the previous Virtual DOM



- So, it basically tries to find out the differen bet^n old virtual DOM & New Virtual DOM. what will be the difference of 2 nodes. And what it will do is, it will calculate the difference and it will actually update the DOM on every render cycle.

- This whole algorithm is known as React Fibre

- This react Fibre is the new algorithm which has come up in ~~2016~~ React-16.

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- Whenever something changes of UI this is known as Reconciliation.
- After React 16 this algorithm is known as React Fibre, this react fibre is a new way of finding the diff and updating the DOM.
- React doesn't touch HTML and DOM a lot that's why everything becomes fast
- React keeps a track of all the UI / all the HTML as a virtual DOM (object representation of whole DOM)

→ so it will have a object over there that will represent the HTML.

- As soon as we click the button, now a new object is formed and react finds the difference betn these 2 objects then it actually updates the DOM.
  It does find the difference in HTML.
- React does the efficient DOM manipulation because it has a virtual DOM.
- Virtual DOM concept existed from a long time in Software Engineering. It's not a react thing.

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- React took this concept and built its own algorithm over that virtual DOM.

- Find out the difference in Virtual DOM and updates the UI.

- React keep an eye, constantly monetor the State Variable
  As soon as it updates, react will find out the diff update the UI...

- That's why we have another parameter in array i.e. setListRestaurant because there needs to be a trigger to start the diff. algorithm and Update the UI... That's why they created 2nd parameter/function.

- when we call that 2nd fxn, it will automatically re-renders the component.

```
const [listOfRestaurant, setListOfRestaurant] = useState([])
```

↓

array destructuring

- useState returning an array.

It is basically doing like this →

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```
const arr = useState()
const [listOfRestaurant, setListOfRestaurant] = arr;
```

or

```
const arr = useState()
const listOfRestaurant = arr[0];
const setListOfRestaurant = arr[1];
```

← we are just destructuring it on the fly.