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Batch - T22

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Assignment - 08

Aim - To write a program to implement State & Props in React

Theory - React has a built-in property in object called state which allows component to create and manage their own data. So unlike props components cannot pass data with state but they can create and manage it internally.

State should not be modified directly but can be modified with a special method called `setState`. A change in the state happens based on triggering a event or a user input. Also React components are rendered based on the data in the state. So when state changes React gets informed immediately re-renders the DOM - not the whole DOM but only the components with updated state.

Props - Props is short for properties and they are used to pass data between React components. React's data flow components is uni-directional. Firstly we need to define some data from the parents component and assign it to child components prop attribute.

Difference between State and Props

- Components receive data from outside with props, whereas they can create and manage their own data with State
- Props are used to pass data whereas State used to manage data
- Props can only be passed from parent to child
- State can be modified by its own component

Conclusion - The concept of State and Props was understood and desired o/p was obtained during lab

Program

WAP to implement the concept of props and state

Steps:

Create a react app using command:

```
npx create-react-app myproject  
cd myproject
```

To run the project type command:

```
npm start
```

You will see a file “App.js” you can save this program in this file.

```
1. import React, { useState } from "react";  
2. import "./App.css";  
3. import Date1 from "./components/Date1";  
4. function App()  
5. { const [number, setNumber] = useState(0);  
6.   const move = () => {  
7.     if (number === 4 ) {  
8.       setNumber(0);  
9.     } else {  
10.      setNumber(number + 1);  
11.    }  
12.  };  
13.  return (  
14.    <div className="App">  
15.      <Date1   time = { new Date().toLocaleString()} />  
16.      <button id="btn" class="button1" onClick={move}>  
17.        Tap Here!  
18.      </button>  
19.      <div className="main">  
20.        <div  
21.          className="box"  
22.          style={  
23.            number === 1  
24.              ? { backgroundColor: "blue" }  
25.              : { backgroundColor: "white" }  
26.            }  
27.          ></div>  
28.        <div  
29.          className="box"  
30.          style={  
31.            number === 2  
32.              ? { backgroundColor: "black" }  
33.              : { backgroundColor: "white" }  
34.            }  
35.          ></div>  
36.      </div>  
37.    )  
38.  }  
39. }
```

```

35.     ></div>
36.     <div
37.         className="box"
38.         style={
39.             number === 3
40.             ? { backgroundColor: "orange"}
41.             : { backgroundColor: "white" }
42.         }
43.     ></div>
44.     <div
45.         className="box"
46.         style={
47.             number === 4
48.             ? { backgroundColor: "pink"}
49.             : { backgroundColor: "white" }
50.         }
51.     ></div>
52. </div>
53. </div>    );}
54. export default App;

```

There will be a “App.css” file in src append this code in this file.

```

1. box{
2.   background-color: lightgrey;
3.   width: 500px;
4.   border: 2px solid rgb(114, 99, 119);
5.   padding: 30px;
6.   margin: 30px;
7. }

```

Now create a components folder in src then create a file “Date1.js” in this directory. Save this program in Date1.js

```

1. import React from 'react';
2. class Date1 extends React.Component {
3.   render() {
4.     return (
5.       <p className="App-clock">
6.         Date is: {this.props.time}.
7.       </p>
8.     );
9.   }
10.}
11. export default Date1;

```

Output:

Initial o/p after typing npm start in command line.

Here we can see Date a button and 4 boxes

Date is: 9/18/2021, 8:02:15 PM.

Tap Here!

On clicking button “Tap Here!” once we see the color change in 1 box

Date is: 9/18/2021, 8:04:26 PM.

Tap Here!

On clicking button “Tap Here!” twice we see the color change in 2 box

Date is: 9/18/2021, 8:05:06 PM.

Tap Here!

On clicking button “Tap Here!” thrice we see the color change in 3 box

Date is: 9/18/2021, 8:05:47 PM.

Tap Here!

On clicking button “Tap Here!” fourth time we see the color change in 4 box

Date is: 9/18/2021, 8:06:43 PM.

Tap Here!