K. J. Somaiya College of Engineering, Mumbai-77

(A Constituent College of Somaiya Vidyavihar University)

Department of Computer Engineering

Batch: D-2	**Roll No.:** 16010122151
Experiment / assignment / tutorial No.__2__	
Grade: AA / AB / BB / BC / CC / CD /DD	
Signature of the Staff In-charge with date	

Title: Implementation of react concept

AIM: To demonstrate the working of React.

Problem Definition:

Demonstrate the use of different concept of React on the basis of following points

1. Function Component
2. Styling/ Bootstrap
3. React JSX
4. Expressions in JSX
5. React Props
6. React state
7. React Component Lifecycle
8. React Events
9. Event Binding

Expected OUTCOME of Experiment:

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Books/ Journals/ Websites referred:

1. Express .js Deep API reference, by Azat Marden, Apress, 2nd edition, 2015.
2. https://codeburst.io/building-a-rest-api-using-mongo-db-75cac3403fab
3. https://www.edureka.co/blog/rest-api-with-node-js/
4. https://bezkoder.com/node-express-mongodb-crud-rest-api/

Pre Lab/ Prior Concepts:

- **Function Component**: Simpler, stateless or stateful via hooks.
- **Styling/Bootstrap**: Use Bootstrap classes for styling; add Bootstrap CSS via CDN or npm.
- **React JSX**: Write HTML-like code inside JavaScript using JSX syntax.
- **Expressions in JSX**: Use curly braces {} to embed JavaScript expressions in JSX.
- **React Props**: Pass data to components using props.
- **React State**: Manage component state using the useState hook.
- **React Component Lifecycle**: Use useEffect for lifecycle management in function components.
- **React Events**: Handle events using camelCase syntax.
- **Event Binding**: Bind event handlers either directly or in the constructor (for class components).

Implementation Details:

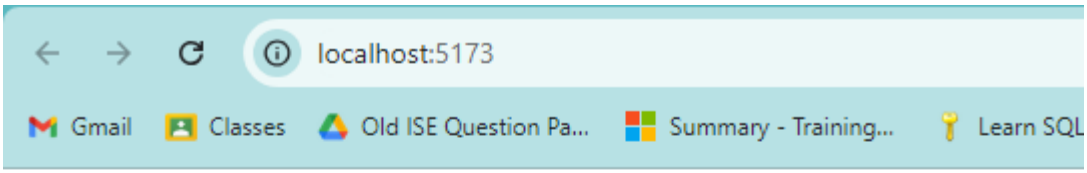
Function Component:ItemList and App are function components. They return JSX to render UI.

- Styling/Bootstrap:Applied Bootstrap classes like list-group, list-group-item, btn, and container for styling.
- React JSX:Used JSX to define how the components should be rendered. Example: <ul className="list-group">.
- Expressions in JSX: {items.map((item, index) => (<li key={index} className="list-group-item">{item}))} dynamically generates list items based on state.
- React Props:Passed items and onAddItem as props from App to ItemList.
- React State:Managed the state of items in the App component using useState.
- React Component Lifecycle:Used useEffect in ItemList to log when the component mounts and unmounts.
- React Events:Attached an onClick event handler to the button in ItemList.
- Event Binding:Bound the handleAddItem function to the button click event.

```
import React, { useState, useEffect } from 'react';

function ItemList({ items, onAddItem }) {
  useEffect(() => {
    console.log('ItemList component mounted');
    return () => {
```

```
      console.log('ItemList component unmounted');
    };
  }, []);

  return (
    <div>
      <ul className="list-group">
        {items.map((item, index) => (
          <li key={index} className="list-group-item">
            {item}
          </li>
        ))}
      </ul>
      <button className="btn btn-primary mt-3" onClick={onAddItem}>
        Add Item
      </button>
    </div>
  );
}

function App() {
  const [items, setItems] = useState(['Item 1', 'Item 2']);

  const handleAddItem = () => {
    setItems([...items, `Item ${items.length + 1} added`]);
  };

  return (
    <div className="container mt-5">
      <h1 className="mb-4">Item List</h1>
      <ItemList items={items} onAddItem={handleAddItem} />
    </div>
  );
}
```

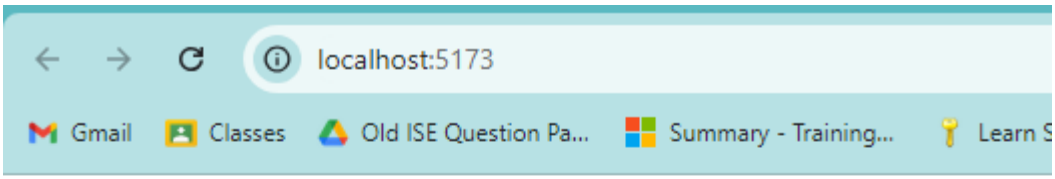
```
export default App;
```



Item List

- Item 1
- Item 2

Add Item



Item List

- Item 1
- Item 2
- Item 3 added
- Item 4 added
- Item 5 added

Add Item

Conclusion:
Learned react fundamentals.