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## Pre-Lab Exercises – Experiment 8

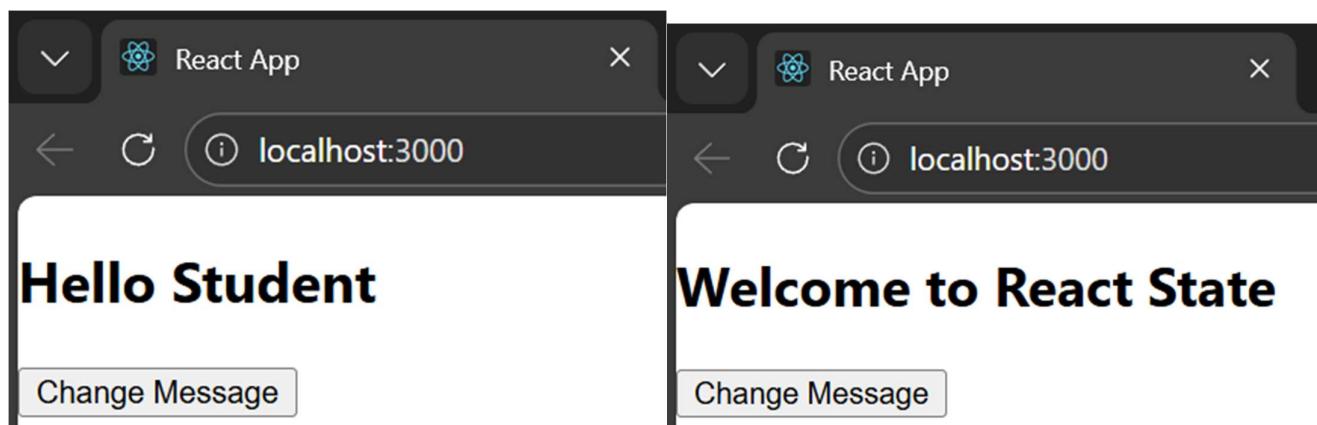
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- ◆ Pre-Lab Activity 1: Basic useState Implementation

Code:

```
src > JS App.js > ...
1   import React, { useState } from "react";
2
3   function MessageChange() {
4     const [message, setMessage] = useState("Hello Student");
5
6     return (
7       <div>
8         <h2>{message}</h2>
9         <button onClick={() => setMessage("Welcome to React State")}>
10           Change Message
11         </button>
12       </div>
13     );
14   }
15
16   export default MessageChange;
17
```

Output:

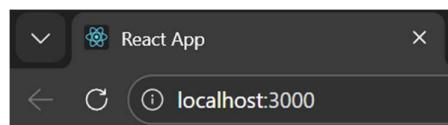


◆ Pre-Lab Activity 2: Simple Counter

Code:

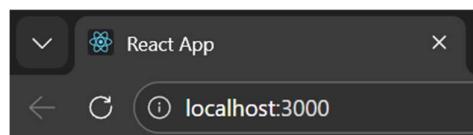
```
src > JS App.js > ...
1  import React, { useState } from "react";
2
3  function Counter() {
4    const [count, setCount] = useState(0);
5
6    return (
7      <div>
8        <h2>Count: {count}</h2>
9        <button onClick={() => setCount(count + 1)}>Increase</button>
10       <button onClick={() => setCount(count - 1)}>Decrease</button>
11     </div>
12   );
13 }
14
15 export default Counter;
16
```

Output:



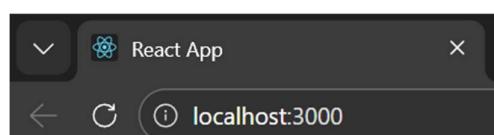
**Count: 0**

[Increase](#) [Decrease](#)



**Count: -3**

[Increase](#) [Decrease](#)



**Count: 2**

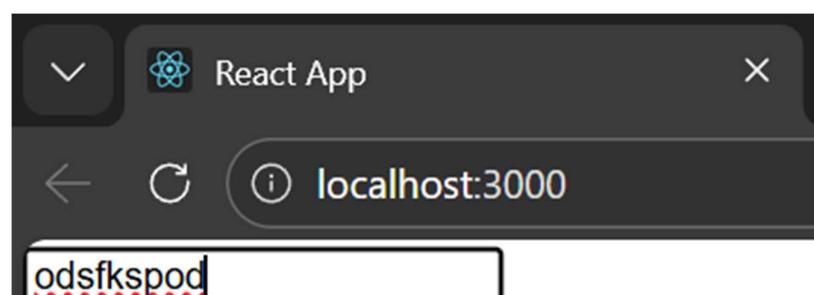
[Increase](#) [Decrease](#)

◆ Pre-Lab Activity 3: Controlled Text Input

Code:

```
src > JS App.js > ...
  2
  3   function TextInput() {
  4     const [text, setText] = useState("");
  5
  6     return (
  7       <div>
  8         <input
  9           type="text"
 10           placeholder="Enter text"
 11           value={text}
 12           onChange={(e) => setText(e.target.value)}
 13         />
 14         <p>You entered: {text}</p>
 15       </div>
 16     );
 17   }
 18
 19   export default TextInput;
 20 |
```

Output:



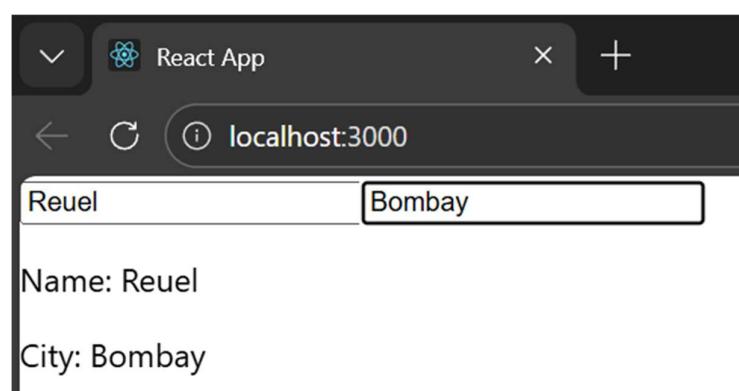
You entered: odsfkspod

◆ Pre-Lab Activity 4: Multiple State Variables

Code:

```
src > JS App.js > ...
1 import React, { useState } from "react";
2
3 function MultipleState() {
4     const [name, setName] = useState("");
5     const [city, setCity] = useState("");
6
7     return (
8         <div>
9             <input
10                type="text"
11                placeholder="Name"
12                onChange={(e) => setName(e.target.value)}
13            />
14            <input
15                type="text"
16                placeholder="City"
17                onChange={(e) => setCity(e.target.value)}
18            />
19
20            <p>Name: {name}</p>
21            <p>City: {city}</p>
22        </div>
23    );
24 }
25
26 export default MultipleState;
27 |
```

Output:

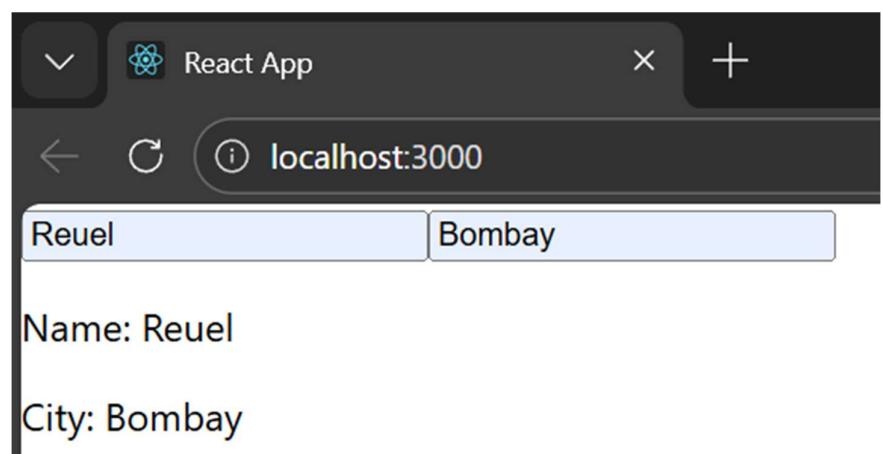


◆ Pre-Lab Activity 5: Single State Object

Code:

```
src > JS App.js > ...
1  import React, { useState } from "react";
2
3  function SingleObjectState() {
4      const [user, setUser] = useState({ name: "", city: "" });
5
6      return (
7          <div>
8              <input
9                  type="text"
10                 placeholder="Name"
11                 onChange={(e) =>
12                     setUser({ ...user, name: e.target.value })
13                 }
14             />
15             <input
16                 type="text"
17                 placeholder="City"
18                 onChange={(e) =>
19                     setUser({ ...user, city: e.target.value })
20                 }
21             />
22
23             <p>Name: {user.name}</p>
24             <p>City: {user.city}</p>
25         </div>
26     );
27 }
28
29 export default SingleObjectState;
30 |
```

Output:

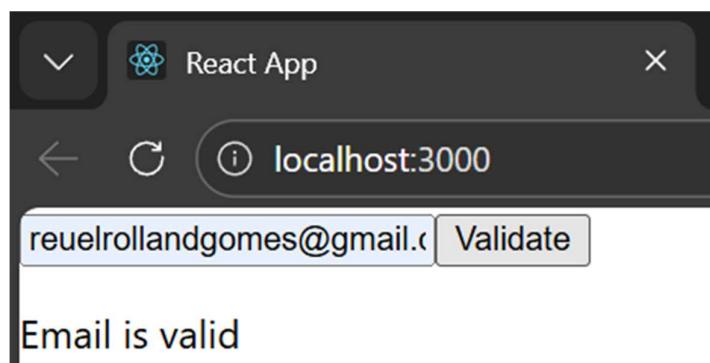


◆ Pre-Lab Activity 6: Simple Validation Logic

Code:

```
src > JS App.js > ...
1  import React, { useState } from "react";
2
3  function EmailValidation() {
4    const [email, setEmail] = useState("");
5    const [message, setMessage] = useState("");
6
7    const validateEmail = () => {
8      if (email === "") {
9        setMessage("Email field cannot be empty");
10     } else if (!email.includes("@")) {
11       setMessage("Invalid email address");
12     } else {
13       setMessage("Email is valid");
14     }
15   };
16
17   return (
18     <div>
19       <input
20         type="text"
21         placeholder="Enter email"
22         value={email}
23         onChange={(e) => setEmail(e.target.value)}
24       />
25       <button onClick={validateEmail}>Validate</button>
26       <p>{message}</p>
27     </div>
28   );
29 }
30
31 export default EmailValidation;
32
```

Output:



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## **Pre-Lab Questions (Theory Answers)**

### **1. What is state in React?**

State is a built-in object in React used to store and manage data that can change over time and affect the UI.

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### **2. Difference between normal variable and state variable?**

A normal variable does not trigger re-rendering when changed, whereas a state variable causes the component to re-render and update the UI.

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### **3. What is a controlled component?**

A controlled component is a form element whose value is controlled by React state.

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### **4. Why does React re-render when state changes?**

React re-renders to reflect the updated state in the UI, ensuring the view stays in sync with the data.

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### **5. Why do we use the spread operator in object state?**

The spread operator helps update a specific property of an object without overwriting the other existing properties.

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