Ex. No.: 03	DEVELOPMENT HARDWARE
Date : 07/08/2024	

Aim:

      To create a simple LED switch simulation using React that allows users to toggle an LED light on and off. This application demonstrates the use of React state management and event handling..

Procedure:

1. Setup Environment:

- Ensure you have Node.js and npm installed.
- Create a new React application using Create React App:

   bash

    npx create-react-app led-switch-simulation

   cd led-switch-simulation

2. Create the App Component:

- Replace the code in src/App.js with the provided code for the LED switch simulation.

3. Import useState:

- Import useState from React to manage the state of the LED.

4. Define State:

- Use the useState hook to create a state variable isOn initialized to false, which tracks whether the LED is on or off.

5. Create Toggle Function:

- Define a function toggleSwitch that toggles the isOn state between true and false.

6. Render the UI:

- Create a centered layout using inline styles.
- Render a circular div that represents the LED, changing its color based on the isOn state.
- Add a button that calls toggleSwitch when clicked, changing its label based on the isOn state.

7. Styling:

- Use inline styles for the LED and button for a clean and simple user interface.

8. Run the Application:

- Start the development server:

Source Code:
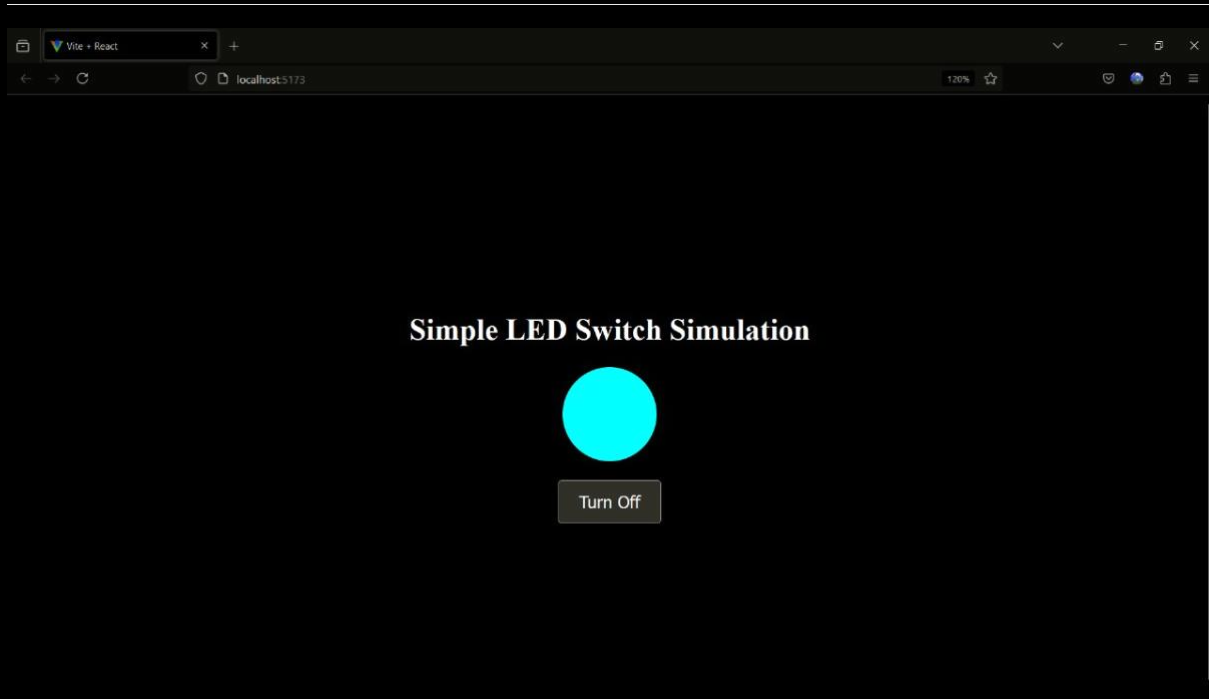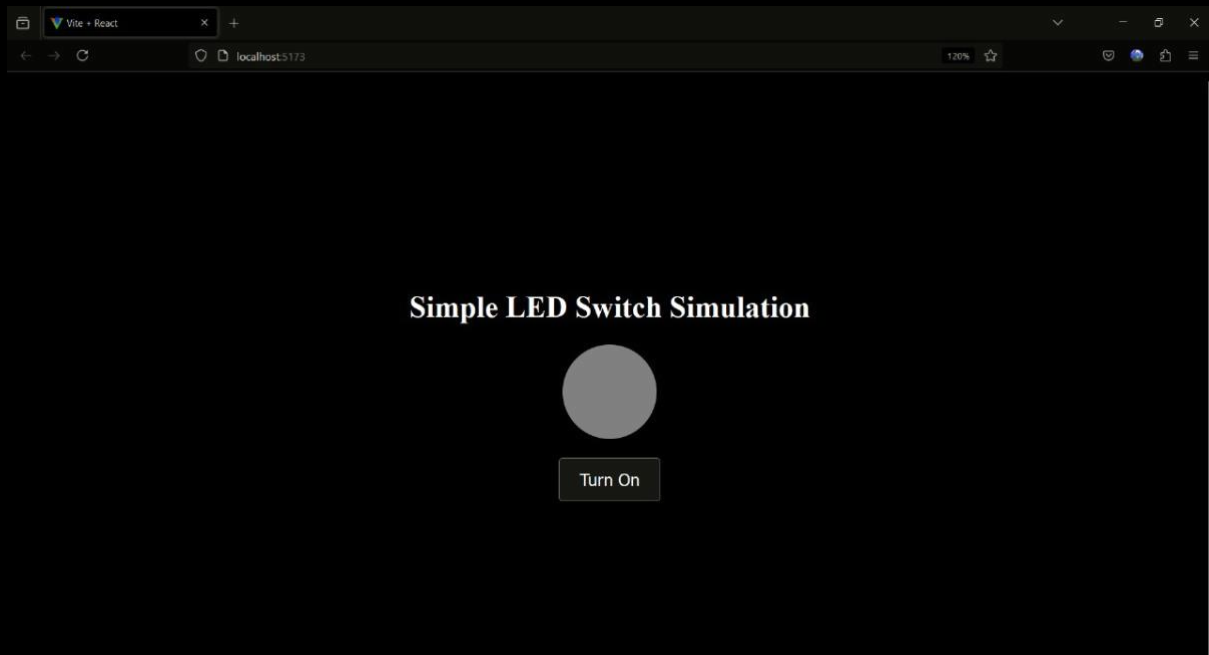
```
import { useState } from 'react';

function App() {
  const [isOn, setIsOn] = useState(false); // State to track if the LED is on or off

  const toggleSwitch = () => {
    setIsOn(!isOn); // Toggle the state (turn the LED on or off)
  };

  return (
    <div style={{ display: 'flex', flexDirection: 'column', alignItems: 'center', justifyContent:
'center', height: '100vh' }}>
      <h1>Simple LED Switch Simulation</h1>
      {/* LED Light */}
      <div
        style={{
          width: '100px',
          height: '100px',
          borderRadius: '50%',
          backgroundColor: isOn ? 'red' : 'grey',
          marginBottom: '20px',
        }}
      ></div>
      {/* Button to Toggle LED */}
      <button
        onClick={toggleSwitch}
        style={{ padding: '10px 20px', fontSize: '18px' }}>
        {isOn ? 'Turn Off' : 'Turn On'}
      </button>
    </div>
  );
}

export default App;
```

Output:

Result:

The LED Switch Simulation application displays an LED light that changes color based on its state. When the LED is "on," it appears red, and when "off," it appears grey. The button toggles the state of the LED between on and off, updating the button text accordingly:

- *LED Off*: Grey color, button displays "Turn On"

- *LED On*: Red color, button displays "Turn Off"