



## FSD Laboratory 03

**Aim:** Design an interactive front end application using React by implementing templating using components, States and Props, Class, Events. It must be responsive to scale across different platforms.

**Objectives:**

To develop a responsive, interactive front-end application using React.js that effectively demonstrates the fundamental concepts of component-based architecture, state management, and event handling. The application will serve as a practical exercise in building a scalable user interface by implementing templating with components, managing dynamic data with states and props, and handling user interactions with events, ensuring a seamless user experience across various devices and screen sizes.

**Theory:** (Write down answers on pages)

1. Explain the role of State and Props in React. How do they differ, and what is the primary purpose of each in managing data flow within a component-based application.
2. What is a React component? Differentiate between a Class component and a Functional component, and discuss the advantages of using a functional component with hooks like useState and useEffect over a class component.
3. Describe the concept of "templating using components" in React. Why is this approach considered superior to traditional web development methods that rely on monolithic HTML files?
4. How do you handle user events in React (e.g., a button click)? Provide a simple code snippet to demonstrate how an event handler is defined in a component and how it can be used to update the component's state.
5. What is responsive web design, and why is it crucial for modern applications? Describe how you would implement a responsive design in a React application using CSS media queries or a CSS-in-JS library.

**Problem Statement: Design webpage according to your roll number don't share the data with other (Upload data on your git account)**

1. Design and develop a responsive, interactive front-end application using React.js that serves as a simple "Task Manager" or "To-Do List." (**Roll Number 1 to 20**)
2. Design and develop a responsive React application for a user profile dashboard. The application should display user information, including a profile picture, name, and a list of recent activities or posts. (**Roll Number 21 to 40**)
3. Develop a responsive React application that functions as a simple product gallery for an e-commerce website. (**Roll Number 41 to 60**)
4. Create a responsive, interactive photo carousel application using React. (**Roll Number 61 Onwards**)