|  |  |  |
| --- | --- | --- |
| **Name : harsh jain** | **Class/Roll No. :D11AD/25** | **Grade :** |

**Title of Experiment :Learning ReactJs.**

**Objective of Experiment : To build a React application featuring a well-structured header, sidebar, and main content components, emphasizing effective component integration, state management, and user-friendly navigation.**

**Outcome of Experiment : A polished React application with an intuitive and visually appealing UI, smooth and efficient navigation, and well-organized content presentation, ensuring a seamless and engaging user experience.**

**Problem Statement : Create a React application that includes the following components:**

* **Header: Display a navigation header with links to different sections of your application.**
* **Sidebar: Implement a sidebar menu with links to various features or pages.**
* **MainContent: Design the main content area where the dynamic content will be displayed. Use at least two different components to represent content.**

**Description / Theory :**

**Header Component:**

1. **Navigation Links:** Include navigation links or buttons that help users move between different sections or pages of the application.
2. **Branding Elements:** Incorporate branding elements such as logos or application names to provide a consistent and recognizable identity.
3. **Responsiveness:** Ensure that the header is responsive and adapts well to different screen sizes, including mobile devices.

**Sidebar Component:**

1. **Structured Menu:** Create a structured menu with clear categories and sections for easy navigation.
2. **Collapse Functionality:** Implement a collapse feature for the sidebar, especially for smaller screens, to provide more space for the main content area.
3. **Iconography:** Use appropriate icons or symbols to represent different features or actions within the application.
4. **Hierarchy and Organization:** Maintain a logical hierarchy and organization of menu items to enhance the user experience.

**MainContent Component:**

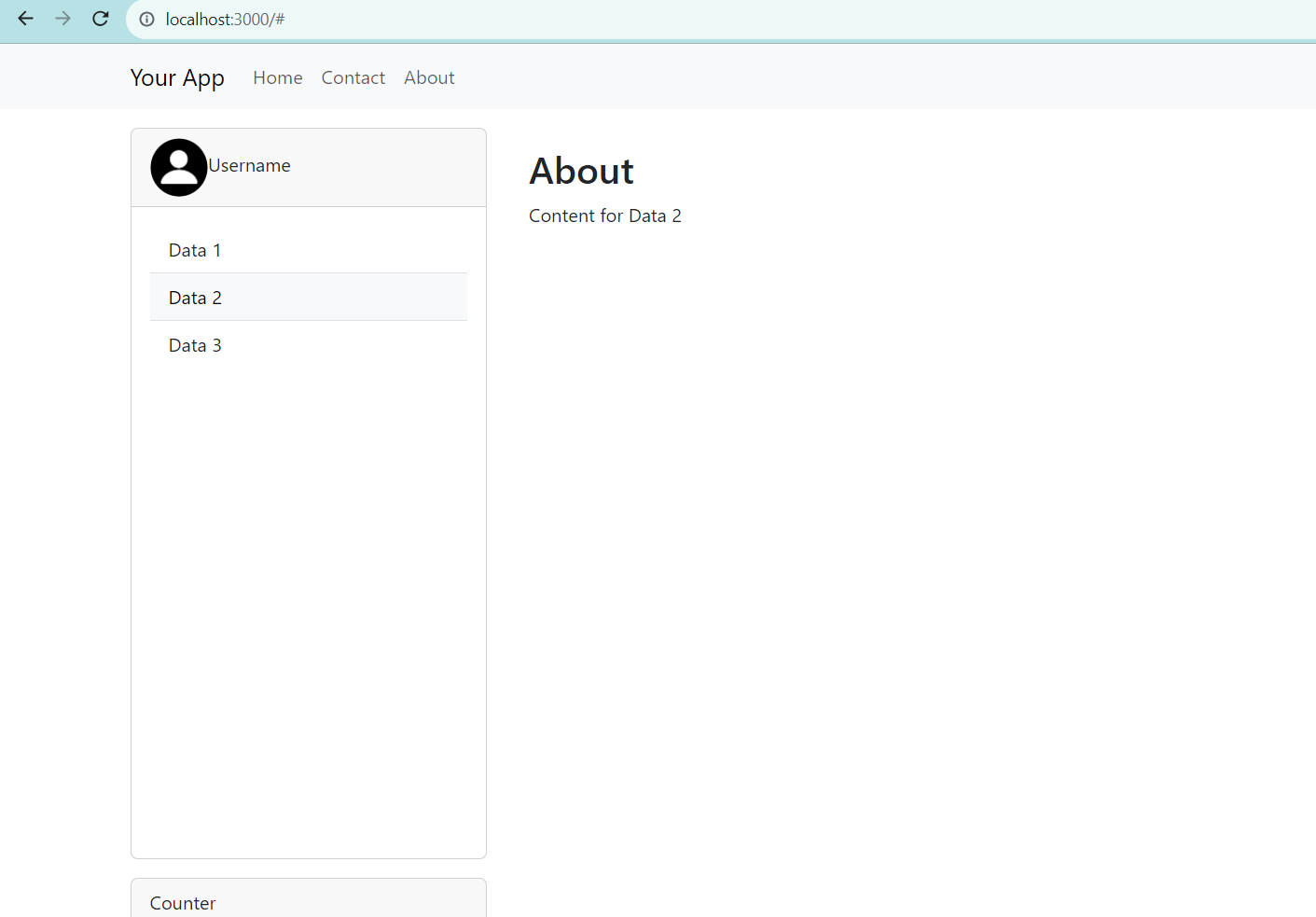
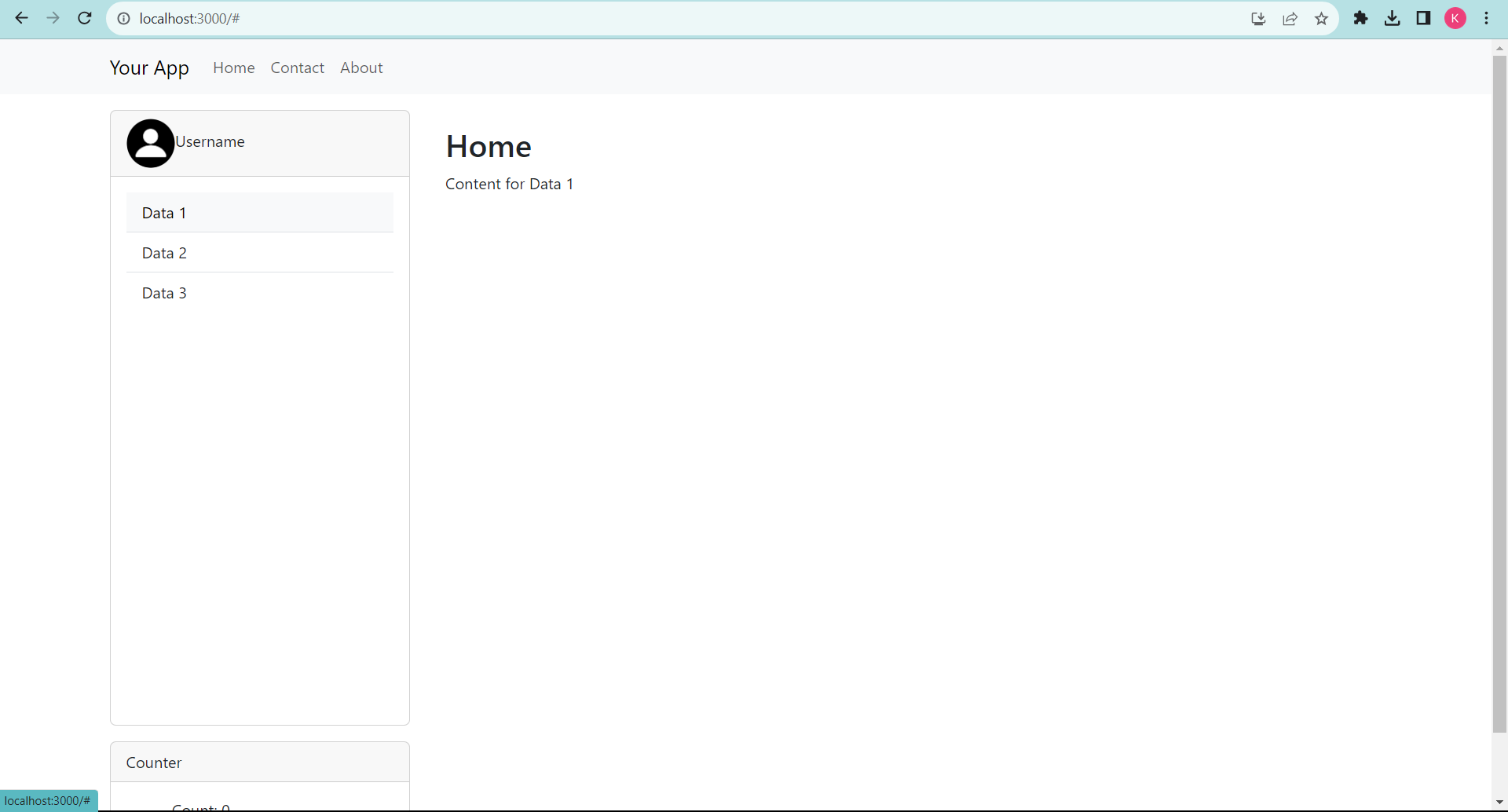
1. **Modular Structure:** Organize the main content into smaller, modular components that handle specific functionalities or display specific types of content.
2. **Conditional Rendering:** Utilize conditional rendering to display different components based on user interactions or routing.
3. **State Management:** Implement proper state management to handle dynamic data within the main content area.
4. **Styling and UI Consistency:** Ensure a consistent UI design across all components within the main content area, maintaining a unified visual identity.

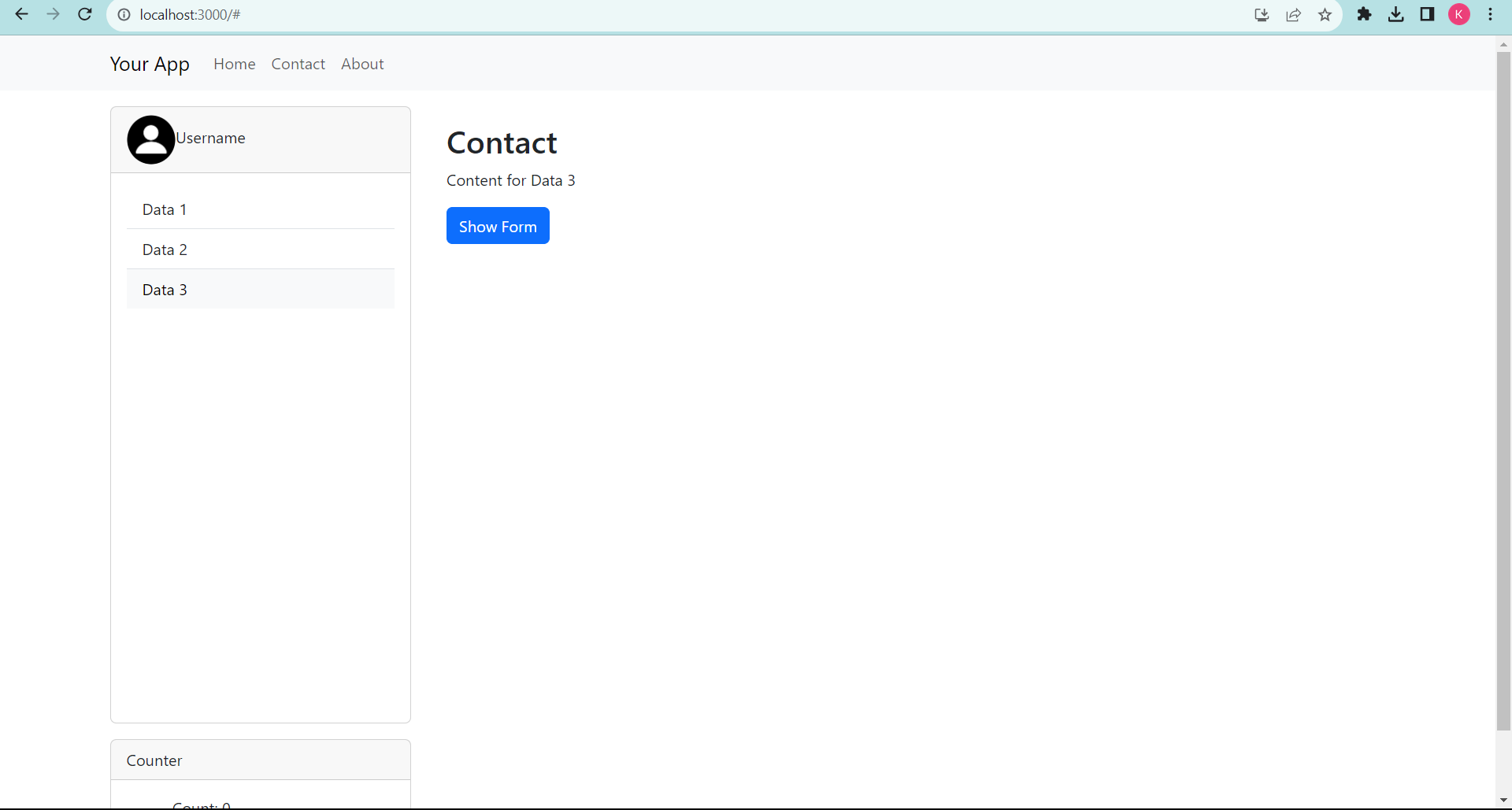
**General Best Practices:**

1. **Component Reusability:** Design components to be reusable across different sections of the application, promoting code efficiency and reducing redundancy.
2. **State Management Libraries:** Consider using state management libraries like Redux or context API for managing complex application states.
3. **Optimization:** Optimize components for performance, considering factors like rendering, data fetching, and component lifecycle methods.
4. **Testing:** Implement unit tests for components to ensure proper functionality and identify potential bugs or issues early in the development process.

**Program :**

|  |
| --- |
| import React from 'react';  import { Link } from 'react-router-dom';    const Header = () => {  return (  <header className="navbar navbar-expand-lg navbar-light bg-light">  <div className="container">  <Link to="/" className="navbar-brand">  Your App  </Link>  <button  className="navbar-toggler"  type="button"  data-bs-toggle="collapse"  data-bs-target="#navbarNav"  aria-controls="navbarNav"  aria-expanded="false"  aria-label="Toggle navigation"  >  <span className="navbar-toggler-icon"></span>  </button>  <div className="collapse navbar-collapse" id="navbarNav">  <ul className="navbar-nav">  <li className="nav-item">  <Link to="/" className="nav-link">  Home  </Link>  </li>  <li className="nav-item">  <Link to="/contact" className="nav-link">  Contact  </Link>  </li>  <li className="nav-item">  <a href="#section3" className="nav-link">  About  </a>  </li>  </ul>  </div>  </div>  </header>  );  };    export default Header;      import React, { useState } from 'react';  import Counter from './Counter';    const Sidebar = ({ onDataSelect }) => {  const data = ['Data 1', 'Data 2', 'Data 3']; // Replace this with your actual data    const handleDataClick = (selectedData) => {  onDataSelect(selectedData);  };    return (  <div className="col-md-3 vh-100 d-flex flex-column justify-content-between">  <div className="card flex-grow-1">  <div className="card-header">  <img  src={process.env.PUBLIC\_URL + '/images/profile.png'}  alt="Profile"  style={{ width: '50px', height: '50px', borderRadius: '50%' }}  />  <span>Username</span>  </div>  <div className="card-body">  <div className="list-group list-group-flush">  {data.map((item, index) => (  <a  key={index}  href="#"  onClick={() => handleDataClick(item)}  className="list-group-item list-group-item-action"  >  {item}  </a>  ))}  </div>  </div>  </div>  <div className="card mt-3">  <div className="card-header">Counter</div>  <div className="card-body d-flex flex-column align-items-center">  <Counter />  </div>  </div>  </div>  );  };    export default Sidebar; |

**Results and Discussion:**

****