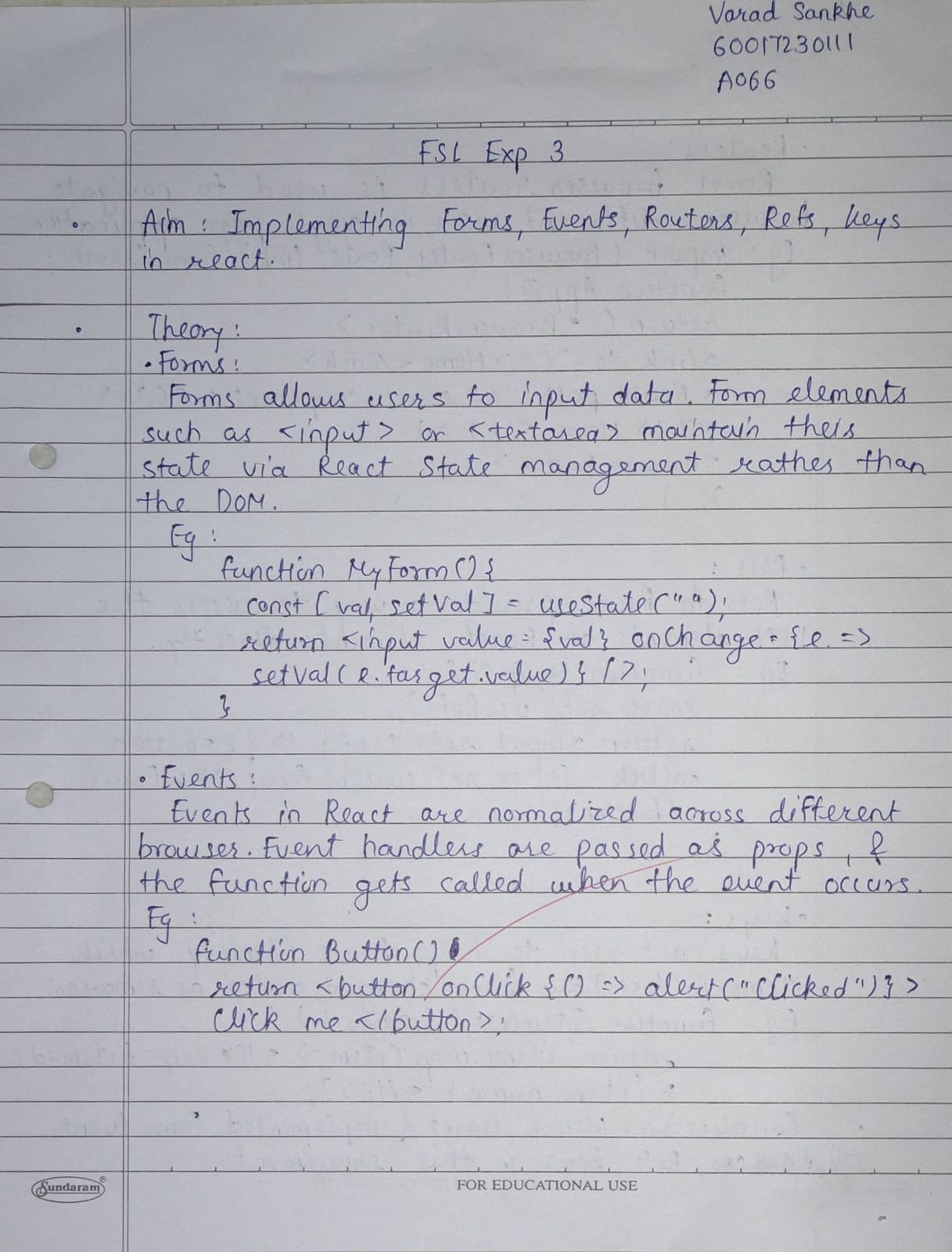
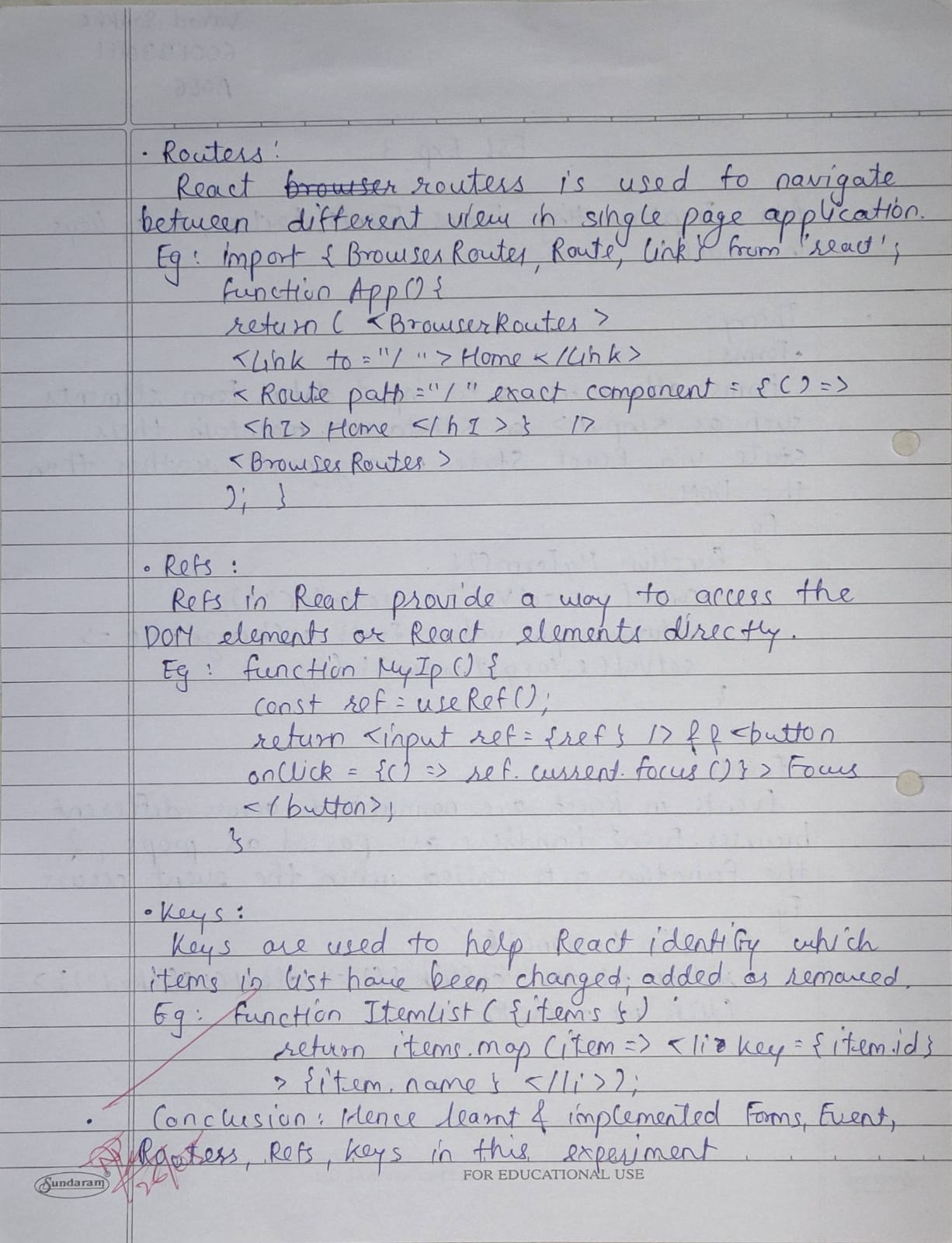
**Experiment 3**

**Name: Varad Sankhe SAP ID: 60017230111**

****

****

| **Date:** | **13/8/2024** |
| --- | --- |
| Aim | **Implementing Forms, Events, Routers, Refs, Keys** |
| Software | React,Node.js |
| Pre-requisite | Active internet connection |
| Theory | import React, { useState } from 'react';  function SimpleForm() {  const [name, setName] = useState('');  const handleChange = (e) => {  setName(e.target.value);  };  const handleSubmit = (e) => {  e.preventDefault();  alert('Form submitted with name: ' + name);  };  return (  <form onSubmit={handleSubmit}>  <input  type="text"  value={name}  onChange={handleChange}  placeholder="Enter your name"  />  <button type="submit">Submit</button>  </form>  );  }  export default SimpleForm;      import React from 'react';  function ClickButton() {  const handleClick = () => {  alert('Button clicked!');  };  return (  <button onClick={handleClick}>Click Me</button>  );  }  export default ClickButton;      import React from 'react';  import { BrowserRouter as Router, Route, Switch, Link } from 'react-router-dom';  function Home() {  return <h2>Home Page</h2>;  }  function About() {  return <h2>About Page</h2>;  }  function Contact() {  return <h2>Contact Page</h2>;  }  function AppRouter() {  return (  <Router>  <nav>  <Link to="/">Home</Link> |  <Link to="/about">About</Link> |  <Link to="/contact">Contact</Link>  </nav>  <Switch>  <Route exact path="/" component={Home} />  <Route path="/about" component={About} />  <Route path="/contact" component={Contact} />  </Switch>  </Router>  );  }  export default AppRouter;      import React, { useRef } from 'react';  function FocusInput() {  const inputRef = useRef(null);  const handleFocus = () => {  inputRef.current.focus();  };  return (  <div>  <input ref={inputRef} type="text" placeholder="Focus on me" />  <button onClick={handleFocus}>Focus Input</button>  </div>  );  }  export default FocusInput;      import React from 'react';  function FruitList() {  const fruits = ['Apple', 'Banana', 'Cherry'];  return (  <ul>  {fruits.map((fruit, index) => (  <li key={index}>{fruit}</li>  ))}  </ul>  );  }  export default FruitList; |
| Code | import React, { useState, useRef } from 'react';  import { useNavigate } from 'react-router-dom';  const CustomerServiceForm = () => {  const [formData, setFormData] = useState({  name: '',  email: '',  question: '',  topic: 'General Inquiry'  });  const navigate = useNavigate();  const nameInputRef = useRef(null); // Create a ref for the name input  const topics = [  'General Inquiry',  'Order Status',  'Product Inquiry',  'Feedback'  ];  const handleChange = (e) => {  const { name, value } = e.target;  setFormData((prevFormData) => ({  ...prevFormData,  [name]: value  }));  };  const handleSubmit = (e) => {  e.preventDefault();  navigate('/thank-you', { state: { ...formData } });  nameInputRef.current.focus(); // Focus on the "Name" input after submission  };  return (  <div className='max-w-md mx-auto p-6 bg-white shadow-md rounded-md'>  <h2 className='text-2xl font-bold mb-4'>Customer Service Form</h2>  <form onSubmit={handleSubmit} className='space-y-4'>  <div>  <label className='block text-sm font-medium'>Name</label>  <input  type='text'  name='name'  value={formData.name}  onChange={handleChange}  ref={nameInputRef} // Attach the ref to the input  className="w-full px-3 py-2 border border-gray-300 rounded-md"  required  />  </div>  <div>  <label className="block text-sm font-medium">Email</label>  <input  type='email'  name='email'  value={formData.email}  onChange={handleChange}  className='w-full px-3 py-2 border border-gray-300 rounded-md'  />  </div>  <div>  <label className="block text-sm font-medium">Question</label>  <textarea  name="question"  value={formData.question}  onChange={handleChange}  className="w-full px-3 py-2 border border-gray-300 rounded-md"  required  ></textarea>  </div>  <div>  <label className="block text-sm font-medium">Topic</label>  <select  name='topic'  value={formData.topic}  onChange={handleChange}  className='w-full px-3 py-2 border border-gray-300 rounded-md'  >  {topics.map((topic, index) => (  <option key={index} value={topic}>  {topic}  </option>  ))}  </select>  </div>  <button  type='submit'  className='w-full bg-blue-500 text-white px-4 py-2 rounded-md hover:bg-blue-600'  >  Submit  </button>  </form>  </div>  );  };  export default CustomerServiceForm;  import CustomerServiceForm from './CustomerServiceForm';  import ThankYou from './ThankYou';  import { Routes, Route } from 'react-router-dom';  function App() {  return (  <div className="min-h-screen bg-gray-100 flex items-center justify-center">  <Routes>  <Route path="/" element={<CustomerServiceForm />} />  <Route path="/thank-you" element={<ThankYou />} />  </Routes>  </div>  );  }  export default App;  import React from 'react';  import { useLocation } from 'react-router-dom';  const ThankYou = () => {  const { state } = useLocation();  return (  <div className="max-w-md mx-auto p-6 bg-white shadow-md rounded-md text-center">  <h2 className="text-3xl font-bold mb-4">Thank You!</h2>  <p className="text-lg mb-6">We have received your message. Here are the details you provided:</p>  <div className="text-left">  <p><strong>Name:</strong> {state.name}</p>  <p><strong>Email:</strong> {state.email}</p>  <p><strong>Question:</strong> {state.question}</p>  <p><strong>Topic:</strong> {state.topic}</p>  </div>  <p className="mt-6">We will get back to you shortly.</p>  </div>  );  };  export default ThankYou; |
| Result |  |
| Code | import { useState, useCallback, useEffect, useRef } from 'react';  const PasswordGenerator = () => {  const [length, setLength] = useState(8);  const [numberAllowed, setNumberAllowed] = useState(false);  const [charAllowed, setCharAllowed] = useState(false);  const [password, setPassword] = useState("");  const passwordRef = useRef(null);  const passwordGenerator = useCallback(() => {  let pass = "";  let str = "ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz";  if (numberAllowed) str += "0123456789";  if (charAllowed) str += "!@#$%^&\*-\_+=[]{}~`";  for (let i = 0; i < length; i++) {  let char = Math.floor(Math.random() \* str.length);  pass += str.charAt(char);  }  setPassword(pass);  }, [length, numberAllowed, charAllowed]);  const copyPasswordToClipboard = useCallback(() => {  passwordRef.current?.select();  passwordRef.current?.setSelectionRange(0, 99999);  window.navigator.clipboard.writeText(password);  }, [password]);  useEffect(() => {  passwordGenerator();  }, [length, numberAllowed, charAllowed, passwordGenerator]);  return (  <div className="w-full max-w-md mx-auto shadow-lg rounded-lg px-4 py-5 my-8 bg-gray-800 text-orange-500">  <h1 className="text-white text-2xl font-bold text-center mb-4">Password Generator</h1>  <div className="flex mb-4">  <input  type="text"  value={password}  className="outline-none w-full py-2 px-3 rounded-l-lg"  placeholder="Password"  readOnly  ref={passwordRef}  />  <button  onClick={copyPasswordToClipboard}  className="bg-blue-700 text-white px-4 py-2 rounded-r-lg hover:bg-blue-800"  >  Copy  </button>  </div>  <div className="flex flex-col gap-y-4">  <div className="flex items-center gap-x-2">  <input  type="range"  min={6}  max={100}  value={length}  className="cursor-pointer"  onChange={(e) => setLength(parseInt(e.target.value))}  />  <span className="text-gray-300">Length: {length}</span>  </div>  <div className="flex items-center gap-x-2">  <input  type="checkbox"  checked={numberAllowed}  id="numberInput"  onChange={() => setNumberAllowed(prev => !prev)}  />  <label htmlFor="numberInput" className="text-gray-300">Numbers</label>  </div>  <div className="flex items-center gap-x-2">  <input  type="checkbox"  checked={charAllowed}  id="characterInput"  onChange={() => setCharAllowed(prev => !prev)}  />  <label htmlFor="characterInput" className="text-gray-300">Characters</label>  </div>  </div>  </div>  );  };  export default PasswordGenerator; |
|  |  |
| Conclusion | This experiment demonstrated React's core features: form handling, event management, routing with React Router, and using refs and keys. We built a simple form, a customer service form with dynamic topics, and navigated between pages using React Router. These elements highlight React's ability to create interactive and dynamic web applications efficiently. |