



International Islamic University Chittagong

Department of Computer Science and Engineering

LAB REPORT

Course title : Software Engineering Sessional &
Software Development 2
Course Code : **CSE-3638 & 3640**
Report No : **07**
Report Title : **Introduction to Frontend Development with React**
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Lab Report: Frontend Development with React

1. 📖 Overview

Frontend development with React empowers developers to build responsive, dynamic user interfaces efficiently. This report covers key concepts, implementation practices, challenges faced, and future recommendations.

Sections include:

- *Introduction:* React's significance in modern web development
- *Fundamentals:* JSX syntax, component structure, state, and props
- *Implementation:* Setting up a React environment, event handling, and API interaction
- *Advanced Concepts:* Routing (React Router), global state management (e.g., Redux or Context API), and performance tuning
- *Challenges:* Common debugging pitfalls and how to solve them

2. 🎯 Objectives

- ✓ Set up a React project using a tool like Vite or Create React App
- ✓ Develop functional and class-based components
- ✓ Design reusable UI components to build a consistent interface
- ✓ Fetch external data using `fetch()` or Axios
- ✓ Handle events such as user input, clicks, and form submissions effectively

3. 🛠️ Tools and Environment

Tool	Purpose
Node.js	Runtime environment for JavaScript
VS Code	Code editor with extensions for React
ReactJS	JavaScript library for building UIs

Lab Tasks

1. Set Up a React Project

- Use **Vite** to scaffold a new React project
- Run the project in development mode (`npm run dev` or `npm start`)
- Verify that the app is working in the browser

2. React Components, Props, and State

- Create at least **two functional components**
- Pass **props** from a parent to a child component
- Use the **useState hook** to manage and display dynamic data

3. Create Simple UI Components

- Build a few simple UI elements such as:
 - A header or navbar
 - A card or list to display items
 - A button that updates or toggles content using state

4. Fetch Data from an API

- Use the **useEffect hook** to fetch data from a public API (e.g., JSONPlaceholder, OpenWeather)
- Display the fetched data in your component using a list or table

5. Form Handling

- Create a simple form with input fields (e.g., name, email)
- Use controlled components to manage input values via state

Handle form submission and display the submitted data or log it



