

9530

St. MOTHER THERESA ENGINEERING COLLEGE

COMPUTER SCIENCE ENGINEERING

NM-ID: E581886B3B1AF1CAFA5414A986D0DE9B

REG NO: 953023104016

DATE:15-09-2025

Completed the project named as

Phase 2

FRONT END TECHNOLOGY

COMMERCE PRODUCT

SUBMITTED BY,

S.Aswin

7538849870

Phase 2 — Solution Design & Architecture (Deadline – Week 7)

Tech Stack Selection

Frontend: React.js, HTML5, CSS3, Bootstrap/Tailwind

Backend: Node.js, Express.js (REST APIs)

Database: IBM Db2 / Cloudant NoSQL

Deployment: IBM Cloud Foundry / IBM Kubernetes

Other Tools: IBM WebSphere, Node-RED (for API orchestration), GitHub

UI Structure / API Schema Design

UI Components:

Header (Login/Register, Cart)

Product Grid

Cart Page

Checkout Page

Admin Dashboard

API Schema Example (Product):

```
{  
  "product_id": "101",  
  "name": "Laptop",  
  "description": "High-performance laptop",
```

```
"price": 65000,  
  "stock": 20,  
  "category": "Electronics"  
}
```

Data Handling Approach

Data fetched from REST APIs (Node.js) → stored in IBM Db2/Cloudant.

State management in frontend with Redux/Context API.

Secure JWT tokens for authentication.

Component / Module Diagram

Frontend: User Interface (React Components)

Backend: REST APIs (Node.js)

Database: IBM Cloudant/Db2

Admin Panel: Product & Order Management

Basic Flow Diagram

User → Frontend UI → API Call → Backend (Node.js) → Database (IBM Cloudant/Db2)

Admin → Dashboard → Manage Products → Update Database → Reflect in Frontend