**23. Design and develop a responsive website to prepare one semester result of VIT students using JavaScript, React and Node JS and MySQL. Take any four subjects with MSE Marks (30%) ESE Marks (70%).**

**Step 1: Install Prerequisites**

**Ensure you have the following installed on your system:**

1. **Node.js -** [**Download and install Node.js**](https://nodejs.org/)
2. **MySQL -** [**Download and install MySQL**](https://dev.mysql.com/downloads/installer/)

**Step 2: Set Up MySQL Database**

**Open MySQL CLI**:  
  
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*-- Create database*  
CREATE DATABASE vit\_data;  
  
*-- Use the database*  
USE vit\_data;  
  
*-- Create table*  
CREATE TABLE vit\_results (  
 id INT AUTO\_INCREMENT PRIMARY KEY,  
 student\_name VARCHAR(100) NOT NULL,  
 reg\_number VARCHAR(15) NOT NULL UNIQUE,  
 subject1\_mse FLOAT NOT NULL,  
 subject1\_ese FLOAT NOT NULL,  
 subject2\_mse FLOAT NOT NULL,  
 subject2\_ese FLOAT NOT NULL,  
 subject3\_mse FLOAT NOT NULL,  
 subject3\_ese FLOAT NOT NULL,  
 subject4\_mse FLOAT NOT NULL,  
 subject4\_ese FLOAT NOT NULL  
);  
  
*-- Insert dummy data*  
INSERT INTO vit\_results (student\_name, reg\_number, subject1\_mse, subject1\_ese, subject2\_mse, subject2\_ese, subject3\_mse, subject3\_ese, subject4\_mse, subject4\_ese)  
VALUES   
('Alice Johnson', '21BCE1001', 25, 65, 28, 68, 30, 70, 24, 66),  
('Bob Smith', '21BCE1002', 22, 63, 20, 58, 27, 67, 26, 68),  
('Charlie Brown', '21BCE1003', 29, 69, 30, 70, 28, 68, 30, 70),  
('Diana Prince', '21BCE1004', 20, 60, 25, 65, 21, 61, 22, 62);

**Step 3: Set Up the Backend (Node.js + Express)**

1. **Create Project Folder**:
   * In your desired location, create a new folder for the backend project.
   * Navigate to that folder in the terminal.

mkdir backend  
cd backend

1. **Initialize Node.js Project:**

npm init -y

1. **Install Required Packages:**

**Install the necessary dependencies:**

npm install express mysql2 cors body-parser

1. **Create server.js:**

Create a server.js file and add the following code to connect to MySQL and expose the results via an API:  
  
Create a server.js file and add the following code to connect to MySQL and expose the results via an API:  
  
const express = require("express");  
const mysql = require("mysql2");  
const bodyParser = require("body-parser");  
const cors = require("cors");  
  
const app = express();  
app.use(cors());  
app.use(bodyParser.json());  
  
*// MySQL Connection*  
const db = mysql.createConnection({  
 host: "localhost",  
 user: "root",  
 password: "root", *// Replace with your actual MySQL password*  
 database: "vit\_data",  
});  
  
db.connect((err) => {  
 if (err) {  
 console.error("Error connecting to database:", err);  
 return;  
 }  
 console.log("Connected to database");  
});  
  
*// Fetch all student results*  
app.get("/results", (req, res) => {  
 const query = "SELECT \* FROM vit\_results";  
 db.query(query, (err, results) => {  
 if (err) {  
 console.error(err);  
 res.status(500).send(err);  
 } else {  
 res.send(results);  
 }  
 });  
});  
  
*// Start the server*  
const PORT = 5001;  
app.listen(PORT, () => {  
 console.log(`Server running on http:*//localhost:${PORT}`);*  
});

**Step 4: Set Up the Frontend (React)**

1. **Create React Project**:

Open a new terminal window and create a React project:

npx create-react-app vit-results-frontend  
cd vit-results-frontend  
npm install axios

1. **Create App.js:**

Replace the code in src/App.js with the following code to display the results:  
  
Replace the code in src/App.js with the following code to display the results:  
  
import React, { useEffect, useState } from "react";  
import axios from "axios";  
  
const App = () => {  
 const [results, setResults] = useState([]);  
 const [error, setError] = useState(""); *// State to track errors*  
  
 useEffect(() => {  
 *// Fetch results from backend*  
 axios.get("http://localhost:5001/results") *// Corrected port to match backend*  
 .then(response => setResults(response.data))  
 .catch(error => {  
 setError("Error fetching data: " + error.message); *// Set error message*  
 console.error("Error fetching data:", error);  
 });  
 }, []);  
  
 return (  
 <div style={{ padding: "20px", fontFamily: "Arial, sans-serif" }}>  
 <h1>VIT Semester Results</h1>  
 {error && <div style={{ color: "red" }}>{error}</div>} {/\* Display error message \*/}  
 <table border="1" cellPadding="10" style={{ borderCollapse: "collapse", width: "100%" }}>  
 <thead>  
 <tr>  
 <th>Name</th>  
 <th>Reg Number</th>  
 <th>Subject 1</th>  
 <th>Subject 2</th>  
 <th>Subject 3</th>  
 <th>Subject 4</th>  
 </tr>  
 </thead>  
 <tbody>  
 {results.length === 0 ? (  
 <tr>  
 <td colSpan="6">No results found</td> {/\* Handle empty results \*/}  
 </tr>  
 ) : (  
 results.map(result => (  
 <tr key={result.reg\_number}>  
 <td>{result.student\_name}</td>  
 <td>{result.reg\_number}</td>  
 <td>{result.subject1\_mse \* 0.3 + result.subject1\_ese \* 0.7}</td>  
 <td>{result.subject2\_mse \* 0.3 + result.subject2\_ese \* 0.7}</td>  
 <td>{result.subject3\_mse \* 0.3 + result.subject3\_ese \* 0.7}</td>  
 <td>{result.subject4\_mse \* 0.3 + result.subject4\_ese \* 0.7}</td>  
 </tr>  
 ))  
 )}  
 </tbody>  
 </table>  
 </div>  
 );  
};  
  
export default App;

1. Run the Frontend**:**

**In the terminal, run the following command to start the React frontend:**

npm start