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College Code : **3126**

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GitHub Repository L

STUDENT MANAGEMENT APP

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1. INTRODUCTION

The **Student Management App** is a full-stack web application developed using **JavaScript** for both frontend and backend.
This application helps to manage student records such as name, roll number, department, email, and phone number using CRUD operations.

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2. PROJECT OBJECTIVE

- To understand full-stack development using JavaScript
- To implement CRUD operations
- To connect frontend and backend
- To store data using MongoDB
- To gain hands-on experience in REST API development

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3. TECHNOLOGIES USED

- **Frontend:**
    - HTML
    - CSS
    - JavaScript
- **Backend:**
    - Node.js
    - Express.js
- **Database:**
    - MongoDB
- **Tools:**

- VS Code
- GitHub
- Postman

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4. SYSTEM REQUIREMENTS

- Windows 10 or above
- Node.js installed
- MongoDB installed or MongoDB Atlas
- Web Browser (Chrome)

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5. PROJECT FOLDER STRUCTURE

student-management-app

```
│
├── backend
│   ├── models
│   │   └── Student.js
│   ├── routes
│   │   └── studentRoutes.js
│   ├── server.js
│   └── package.json
│
├── frontend
│   ├── index.html
│   ├── style.css
│   └── script.js
│
└── README.md
```

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6. BACKEND IMPLEMENTATION

Step 1: Initialize Backend

- Create backend folder
- Run npm init
- Install required packages

Step 2: MongoDB Connection

- Connect MongoDB using mongoose
- Verify database connection

Step 3: Create Student Schema

Fields Used:

- Name
- Roll Number
- Department
- Email
- Phone Number

Step 4: Create REST API Routes

- POST – Add Student
- GET – View Students
- PUT – Update Student
- DELETE – Delete Student

Step 5: Error Handling

- Handle server and database errors

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7. FRONTEND IMPLEMENTATION

- Create HTML form for student details
- Design UI using CSS
- Handle user actions using JavaScript

- Send requests to backend using fetch API

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8. CRUD OPERATIONS EXPLANATION

- **Create:** Add new student details
- **Read:** Display all students
- **Update:** Modify existing student details
- **Delete:** Remove student record

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9. CONNECTING FRONTEND AND BACKEND

- Frontend sends HTTP requests
- Backend processes requests
- MongoDB stores data
- Response sent back to frontend

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10. TESTING & OUTPUT

- Tested APIs using Postman
- Verified CRUD operations
- Checked frontend form submission
- Data successfully stored in MongoDB

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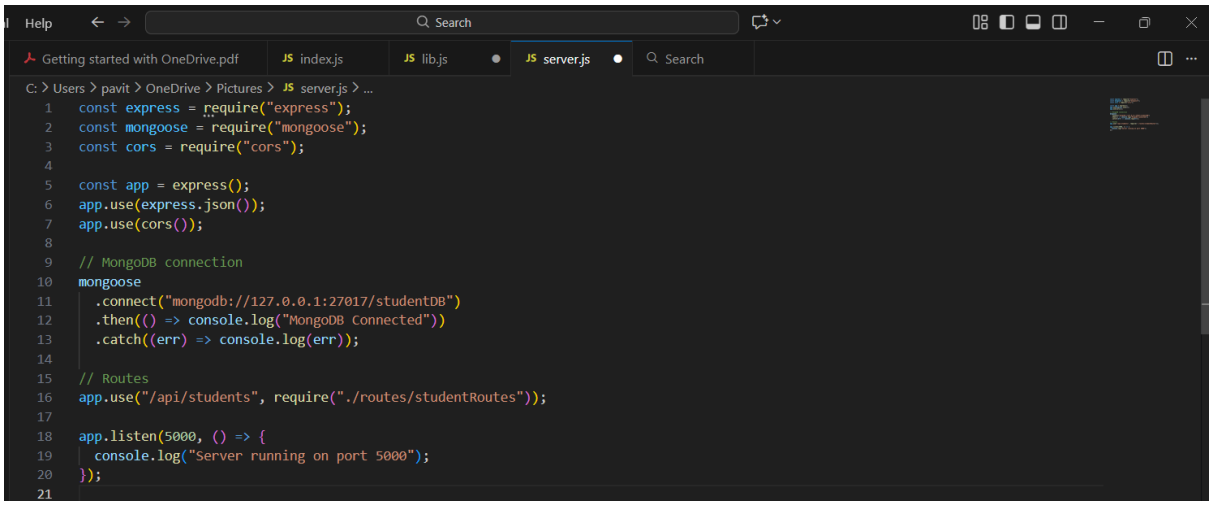
11. CONCLUSION

The **Student Management App** successfully demonstrates a full-stack application using JavaScript.
This project helped in understanding backend development, frontend interaction, and database integration.

BACKEND :



FRONTEND: