Student Management FastAPI Project

Contributors

- Arsh E Murad – 362609
- Sohail Ahmed – 359132

Project Overview

Yeh project ek Student Management System hai jo FastAPI framework ka use karta hai.

Is project ke through aap students ko add, update, delete aur unki list dekh sakte ho.

Students ke marks ke base par grades (A, B, C, Fail) bhi calculate hote hain.

Project JSON file ko database ke tor par use karta hai aur Jinja2 templates ke zariye frontend pages (HTML) generate karta hai.

Installation & Setup

1. Virtual Environment Create karein

python -m venv Project

2. Virtual Environment Activate karein (Windows)

Project\Scripts\activate

3. Project Files Copy karein

GitHub se jo project download kiya hai, uska folder kholen aur andar wali saari files

(jaise main.py, templates/, data.json, requirements.txt) aapke banaye huye Project folder ke andar paste karein.

4. Required Packages Install karein

pip install -r requirements.txt

5. Project Run karein

uvicorn main:app --reload

Features

1. Home Page (/)
- Root URL automatically redirect hota hai /students par.

2. List Students (/students)

- Saare students ka record table me show hota hai (Roll No, Name, Marks, Grade).

- Grade auto-calculate hota hai marks ke base par:

>= 80 → A

>= 60 → B

>= 40 → C

< 40 → Fail

3. Add Student (/students/add)

- Roll number, name, aur marks enter karke student add hota hai.

- Validation:

* Roll number integer hona chahiye

* Name sirf alphabets me hona chahiye

* Marks 0–100 ke beech hone chahiye

4. Delete Student (/students/delete/{roll_no})

- Roll number ke zariye student delete hota hai.

5. Update Student (/students/update/{roll_no})

- Student ka naam aur marks update karne ki facility hai.

- Validation same rules follow karta hai jaise add karte waqt.

Project File Structure

Project/
■■■ main.py # FastAPI application
■■■ data.json # Student records stored in JSON
■■■ requirements.txt # Dependencies list
■■■ templates/ # HTML Templates (Jinja2)
■ ■■■ base.html
■ ■■■ list_students.html
■ ■■■ add_student.html
■ ■■■ update_student.html

Access

- Run karne ke baad browser me open karein:
http://127.0.0.1:8000/students

- API Docs (Swagger UI):

http://127.0.0.1:8000/docs

- Redoc Documentation:
http://127.0.0.1:8000/redoc