**Project: Student Application Testing System**

**Overview**

The goal of this project is to create a **FastAPI** application that allows instructors to test student applications. The app will provide APIs to register students, submit test results, fetch reports, and analyze performance.

**Tech Stack:**

* **Language:** Python
* **Framework:** FastAPI
* **Database:** None (Use in-memory storage, e.g., dictionaries)

**Models**

Since we are not using a database, we define models using **Pydantic**.

from pydantic import BaseModel, Field

from typing import List, Optional

class Student(BaseModel):

id: int = Field(..., description="Unique identifier for the student")

name: str = Field(..., min\_length=2, max\_length=50, description="Student's full name")

email: str = Field(..., description="Student's email address")

tests\_taken: List[int] = []

class Test(BaseModel):

id: int = Field(..., description="Unique identifier for the test")

name: str = Field(..., min\_length=2, max\_length=100, description="Name of the test")

max\_score: int = Field(..., description="Maximum possible score")

class TestResult(BaseModel):

student\_id: int = Field(..., description="ID of the student taking the test")

test\_id: int = Field(..., description="ID of the test taken")

score: int = Field(..., description="Score obtained in the test")

class ResponseMessage(BaseModel):

message: str

**API Endpoints**

**1. Create a Student**

**URL:** POST /students/

{

"id": 1,

"name": "John Doe",

"email": "john@example.com"

}

**2. Get a Student by ID**

**URL:** GET /students/{student\_id}/

**3. Get All Students**

**URL:** GET /students/

**4. Create a Test**

**URL:** POST /tests/

{

"id": 101,

"name": "Math Quiz",

"max\_score": 100

}

**5. Get a Test by ID**

**URL:** GET /tests/{test\_id}/

**6. Get All Tests**

**URL:** GET /tests/

**7. Submit Test Result**

**URL:** POST /results/

{

"student\_id": 1,

"test\_id": 101,

"score": 85

}

**8. Get All Test Results for a Student**

**URL:** GET /results/student/{student\_id}/

**9. Get All Test Results for a Specific Test**

**URL:** GET /results/test/{test\_id}/

**10. Get Average Score for a Test**

**URL:** GET /results/test/{test\_id}/average

**11. Get Highest Score for a Test**

**URL:** GET /results/test/{test\_id}/highest

**12. Delete a Student by ID**

**URL:** DELETE /students/{student\_id}/