✓ Folder structure
✓ File names
✓ JSON file
✓ Python Flask file
✓ HTML template file
✓ How everything connects

Project using **Flask + JSON file + HTML template** to read and display a student database.

FINAL PROJECT: Student Database (Flask + JSON + HTML)

1. PROJECT FOLDER STRUCTURE
Create a folder named:
flask_student_project/
Inside it, create this structure:

```
flask_student_project/
│
├── app.py
├── students.json
│
└── templates/
    └── students.html
```

2. CREATE & ACTIVATE VIRTUAL ENVIRONMENT
Windows:
python -m venv venv
venv\Scripts\activate
Mac/Linux:
python3 -m venv venv
source venv/bin/activate

3. INSTALL FLASK
Inside the virtual environment:
pip install flask

4. CREATE THE JSON FILE
File Name: students.json
Location: inside main folder

flask_student_project/students.json
Content:

```
[
  {
    "id": 1,
```

```
    "name": "Alice",
    "age": 20,
    "course": "Maths"
  },
  {
    "id": 2,
    "name": "Bob",
    "age": 22,
    "course": "Biology"
  },
  {
    "id": 3,
    "name": "Charlie",
    "age": 21,
    "course": "Computer Science"
  }
]
```

5. CREATE THE FLASK PYTHON FILE

File Name: app.py

Location: inside main folder

flask_student_project/app.py

Content:

```
from flask import Flask, jsonify, render_template
import json

app = Flask(__name__)

# ---------------------------------------
# Load JSON data from file
# ---------------------------------------
def load_students():
  with open("students.json", "r") as f:
    return json.load(f)

# ---------------------------------------
# API to return JSON student data
# ---------------------------------------
@app.route("/api/students")
def api_students():
  students = load_students()
  return jsonify(students)

# ---------------------------------------
# Webpage that displays students in table
```

```
# ---------------------------------------
@app.route("/")
def home():
    return render_template("students.html")

# ---------------------------------------
# Run the Flask app
# ---------------------------------------
if __name__ == "__main__":
    app.run(debug=True)
```

6. CREATE THE HTML TEMPLATE FILE

File Name: students.html

Location: inside templates folder

flask_student_project/templates/students.html

Content:

```
<!DOCTYPE html>
<html>
<head>
    <title>Student Database</title>

    <!-- Bootstrap for styling -->
    <link rel="stylesheet"
        href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/css/bootstrap.min.css">

    <style>
        body {
            margin: 30px;
        }
        h1 {
            color: #4a148c;
            margin-bottom: 20px;
        }
    </style>
</head>
<body>

    <h1>Student Database</h1>

    <table class="table table-bordered table-striped" id="studentTable">
        <thead class="table-dark">
            <tr>
                <th>ID</th>
                <th>Name</th>
                <th>Age</th>
```

```
            <th>Course</th>
        </tr>
    </thead>
    <tbody>
        <!-- Data will load here -->
    </tbody>
</table>

<script>
    // Fetch student data from Flask API
    fetch("/api/students")
        .then(response => response.json())
        .then(data => {
            const tbody = document.querySelector("#studentTable tbody");

            data.forEach(student => {
                const row = `
                    <tr>
                        <td>${student.id}</td>
                        <td>${student.name}</td>
                        <td>${student.age}</td>
                        <td>${student.course}</td>
                    </tr>
                `;
                tbody.innerHTML += row;
            });
        });
</script>

</body>
</html>
```

7. RUN THE PROJECT

Inside your project folder:

python app.py

You will see:

Running on http://127.0.0.1:5000/

Open in browser:

http://127.0.0.1:5000/

You will see the student table displayed on the webpage.

8. SUMMARY OF FILE NAMES & PURPOSE

File Name	Purpose
app.py	Flask app, routes, API, loads JSON
students.json	JSON database storing student details
templates/students.html	Web page displaying student list using HTML + JS