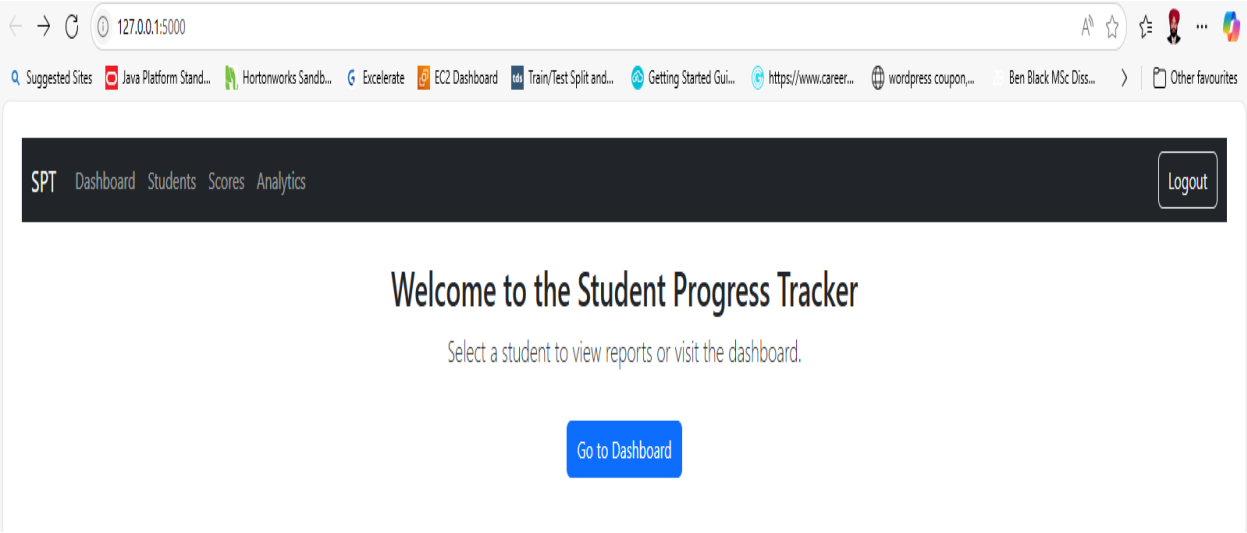
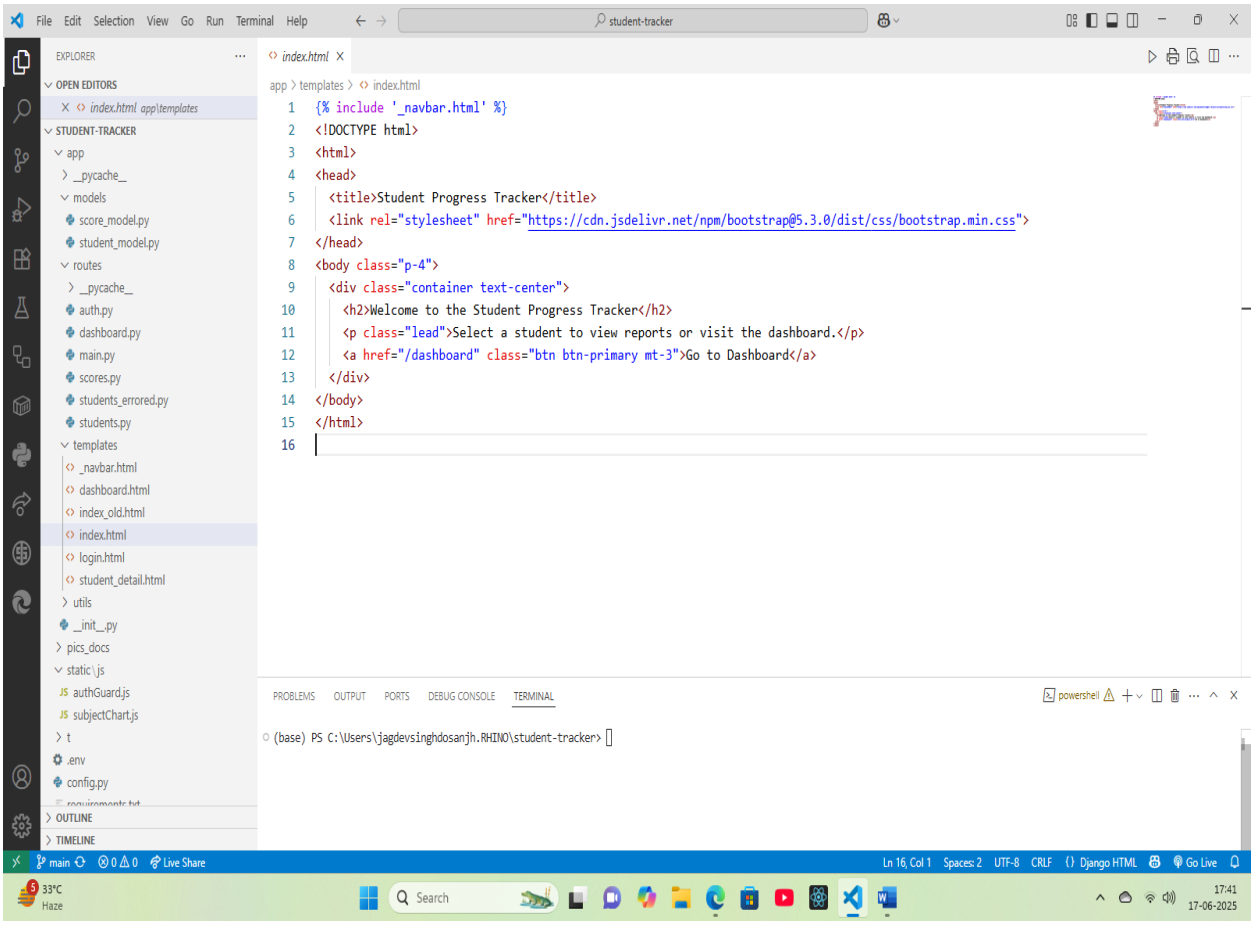
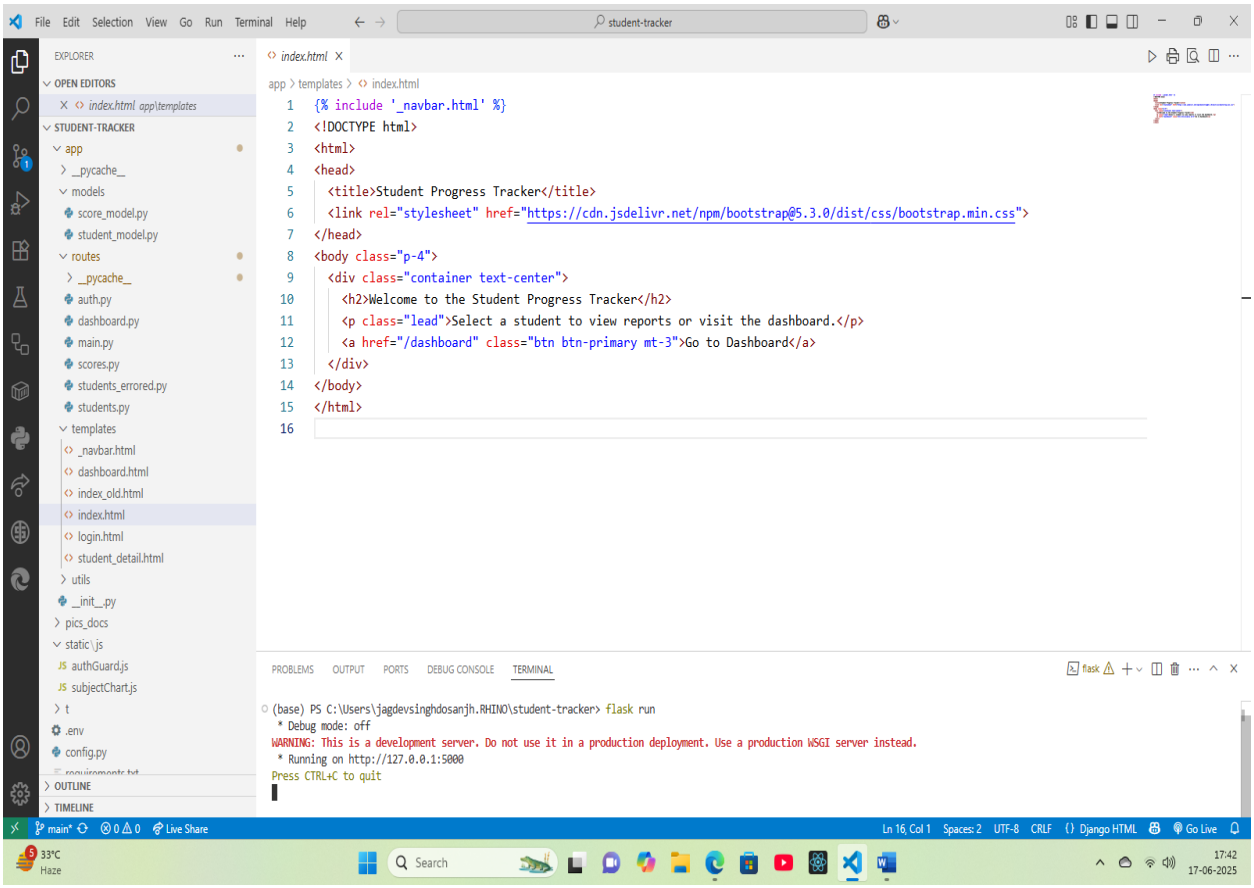
Student Progress Tracker



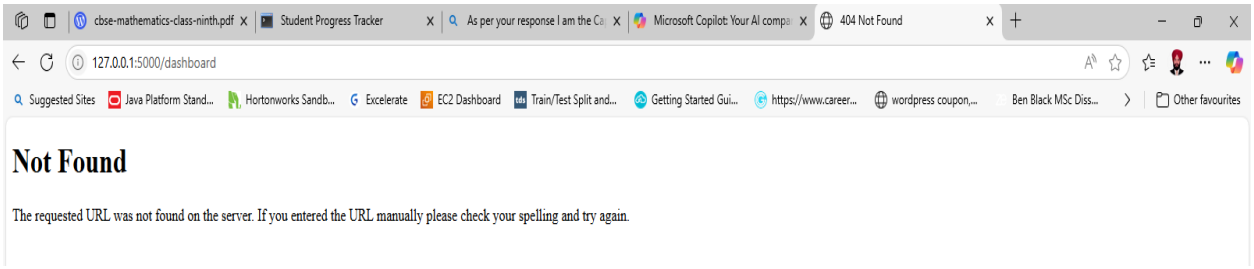
Outcome in MS Edge Browser



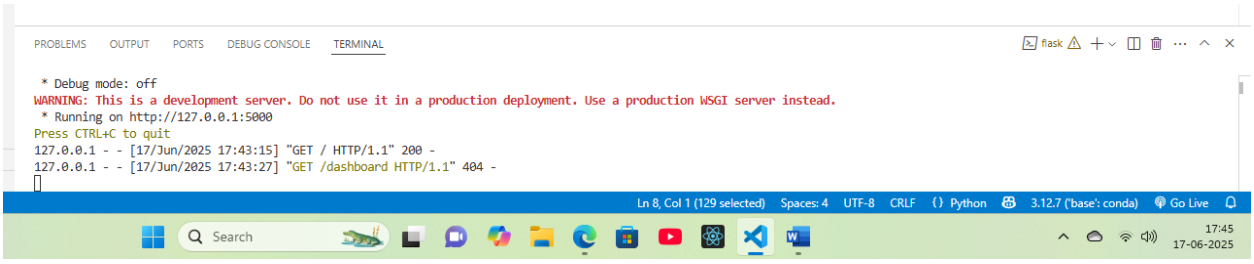
VS Code view 1



VS Code View 2 (after flask run command execution)



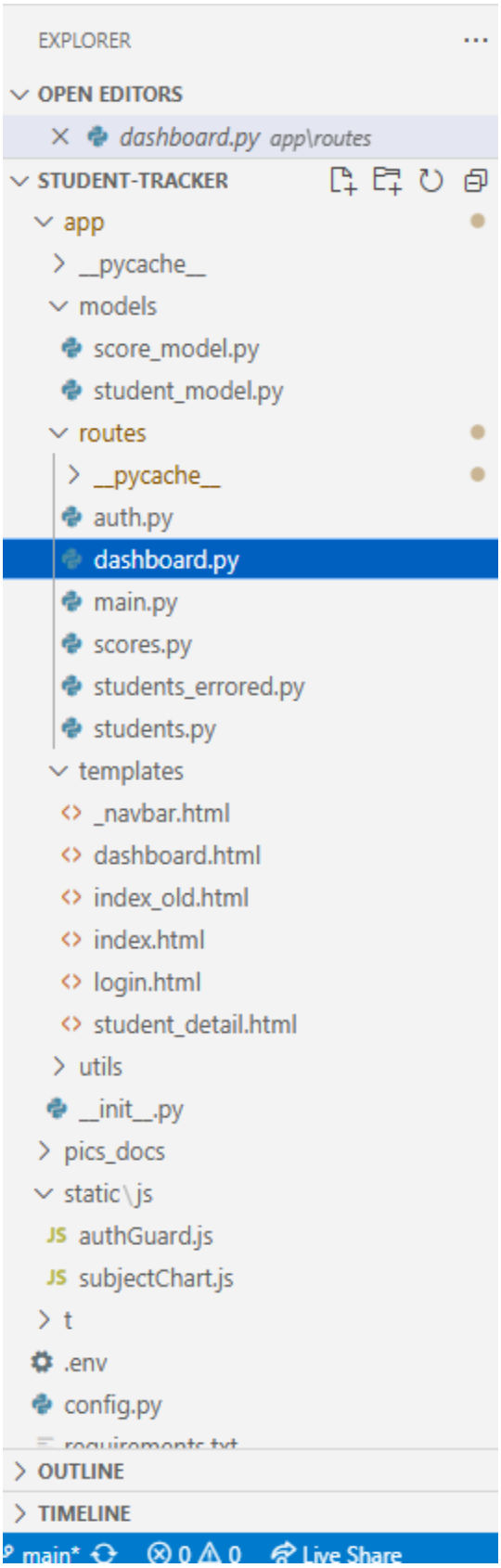
Dashboard Not found when navbar link Dashboard (as per blueprint) clicked to open it.



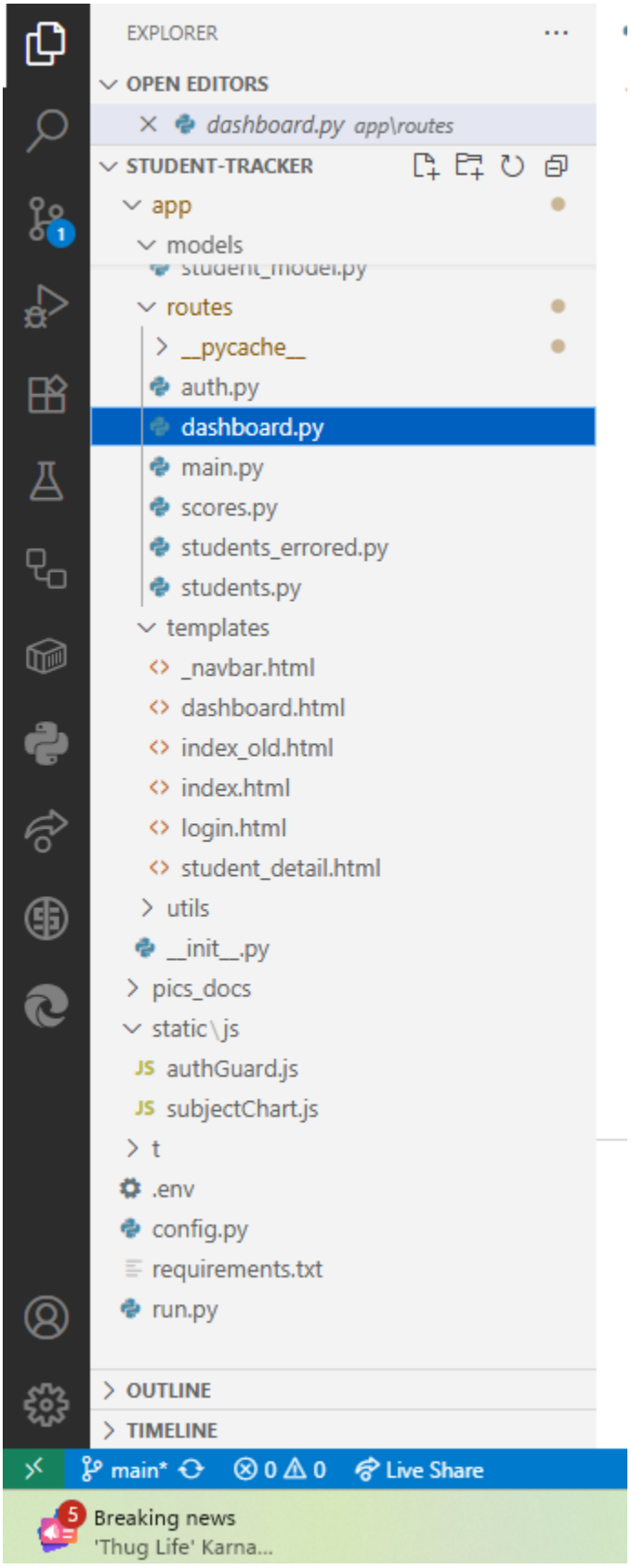
Warning 404 at VS Code Terminal for Dashboard resource

Other resources like Students Scores Analytics are also not working. Just 404 Messages for these resources.

Directory Structure Snapshot 1 Top View



Directory Structure Snapshot 1 Bottom View



Directory Tree (SPT)

```
PROBLEMS  OUTPUT  PORTS  DEBUG CONSOLE  TERMINAL

(base) PS C:\Users\jagdevsinghdosanjh.RHINO\student-tracker> tree
Folder PATH listing
Volume serial number is A2BB-0B67
C:.
├───app
│   ├───models
│   ├───routes
│   │   └───__pycache__
│   ├───templates
│   ├───utils
│   │   └───__pycache__
│   └───__pycache__
├───pics_docs
├───static
│   └───js
└───t
(base) PS C:\Users\jagdevsinghdosanjh.RHINO\student-tracker>
```

Models directory Contents

```
(base) PS C:\Users\jagdevsinghdosanjh.RHINO\student-tracker\app\models> dir


    Directory: C:\Users\jagdevsinghdosanjh.RHINO\student-tracker\app\models


Mode                 LastWriteTime         Length Name
----                 -------------         ------ ----
-a----        17-06-2025     01:41            316 score_model.py
-a----        17-06-2025     02:31           1432 student_model.py


(base) PS C:\Users\jagdevsinghdosanjh.RHINO\student-tracker\app\models>
```

Routes Directory Contents

```
PROBLEMS  OUTPUT  PORTS  DEBUG CONSOLE  TERMINAL

(base) PS C:\Users\jagdevsinghdosanjh.RHINO\student-tracker\app\routes> dir


    Directory: C:\Users\jagdevsinghdosanjh.RHINO\student-tracker\app\routes


Mode                 LastWriteTime         Length Name
----                 -------------         ------ ----
d-----        17-06-2025     17:41                __pycache__
-a----        17-06-2025     01:42            717 auth.py
-a----        17-06-2025     17:22            177 dashboard.py
-a----        17-06-2025     00:53            165 main.py
-a----        17-06-2025     00:08           2107 scores.py
-a----        17-06-2025     17:26           7549 students.py
-a----        17-06-2025     01:45           4226 students_errored.py


(base) PS C:\Users\jagdevsinghdosanjh.RHINO\student-tracker\app\routes>
```

Templates directory contents

```
PROBLEMS  OUTPUT  PORTS  DEBUG CONSOLE  TERMINAL

(base) PS C:\Users\jagdevsinghdosanjh.RHINO\student-tracker\app\templates> dir


    Directory: C:\Users\jagdevsinghdosanjh.RHINO\student-tracker\app\templates


Mode                 LastWriteTime         Length Name
----                 -------------         ------ ----
-a----        16-06-2025     23:48           1136 dashboard.html
-a----        17-06-2025     02:22            519 index.html
-a----        17-06-2025     00:55           1717 index_old.html
-a----        16-06-2025     23:13           1346 login.html
-a----        17-06-2025     02:11           1335 student_detail.html
-a----        17-06-2025     02:08            830 _navbar.html


(base) PS C:\Users\jagdevsinghdosanjh.RHINO\student-tracker\app\templates>
```

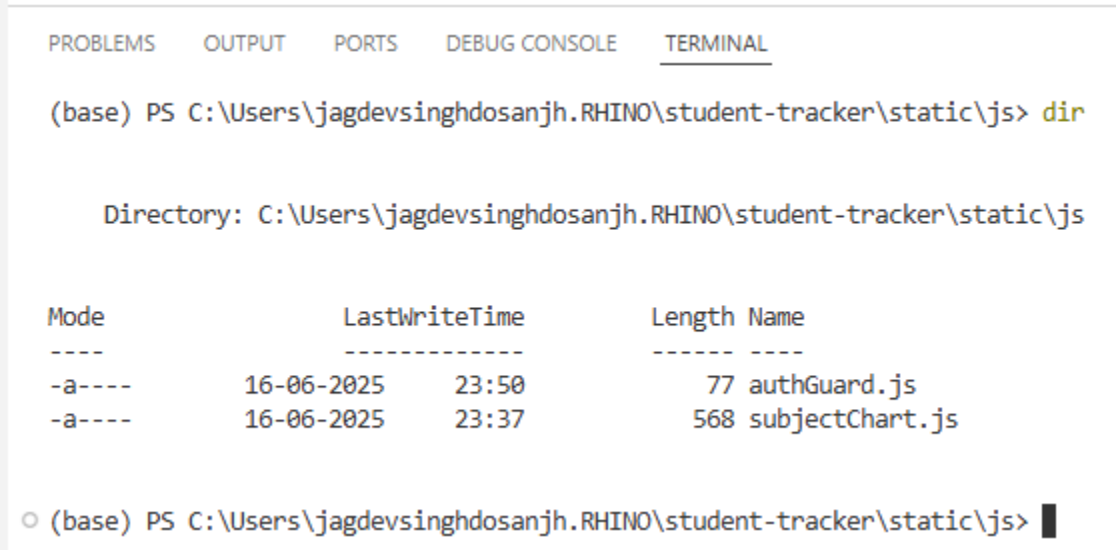
Utils Directory Contents

```
PROBLEMS  OUTPUT  PORTS  DEBUG CONSOLE  TERMINAL

(base) PS C:\Users\jagdevsinghdosanjh.RHINO\student-tracker\app\utils> dir


    Directory: C:\Users\jagdevsinghdosanjh.RHINO\student-tracker\app\utils


Mode                 LastWriteTime         Length Name
----                 -------------         ------ ----
d-----        17-06-2025     00:34                __pycache__
-a----        17-06-2025     00:30           1202 auth_utils.py
-a----        16-06-2025     23:23            614 image_handler.py
-a----        17-06-2025     00:07           1217 pdf_generator.py


(base) PS C:\Users\jagdevsinghdosanjh.RHINO\student-tracker\app\utils>
```

Complete **app** folder in **student-tracker** project

```
PROBLEMS  OUTPUT  PORTS  DEBUG CONSOLE  TERMINAL

(base) PS C:\Users\jagdevsinghdosanjh.RHINO\student-tracker\app> dir


    Directory: C:\Users\jagdevsinghdosanjh.RHINO\student-tracker\app


Mode                 LastWriteTime         Length Name
----                 -------------         ------ ----
d-----        16-06-2025     22:40                models
d-----        17-06-2025     00:53                routes
d-----        17-06-2025     00:55                templates
d-----        17-06-2025     00:21                utils
d-----        17-06-2025     17:20                __pycache__
-a----        17-06-2025     15:06           1264 __init__.py


(base) PS C:\Users\jagdevsinghdosanjh.RHINO\student-tracker\app>
```

static/js contents



Files and codes

Files

1. score_model.py : (inside models of app directory)
2. student_model.py : (inside models)
3. auth.py: (inside routes of app directory)
4. dashboard.py: (inside routes)
5. main.py: (inside routes)
6. scores.py: (inside routes)
7. students.py: (inside routes)
8. _navbar.html: (inside templates of app directory)
9. dashboard.html: (inside templates)
10. index.html: (inside templates)
11. login.html: (inside templates)
12. student_detail.html: (inside templates)
13. auth_utils.py: (inside utils of app directory)
14. image_handler.py: (inside utils)
15. pdf_generator.py(inside utils)
16. __init__.py (inside app directory)
17. authGuard.js: (inside static\js)
18. subjectChart.js: (inside static\js)
19. .env : (inside student-tracker project directly)
20. config.py: (inside student-tracker project directly)
21. requirements.txt: (inside student-tracker project directly)
22. run.py : (inside student-tracker project directly)

Codes

1. **socre_model.py**

```
# Each score links to a student and a subject
from datetime import datetime
from bson import ObjectId

{
  "student_id": ObjectId,
  "subject": "Mathematics",
  "marks_obtained": 87,
  "total_marks": 100,
  "exam_date": "2025-06-17",
  "created_at": datetime,
  "updated_at": datetime
}
```

2. **student_model.py**

```
# student_model.py

from bson import ObjectId

class Student:
  def __init__(self, name, roll_no, email, _id=None):
    self.id = str(_id) if _id else None
    self.name = name
    self.roll_no = roll_no
    self.email = email

  def to_dict(self):
    return {
      "full_name": self.name,
      "roll_number": self.roll_no, # Assuming roll_no is used as roll_number
      "class_name": self.class_name,  # Assuming roll_no is used as class_name
      "date_of_birth": None,  # Placeholder, as date_of_birth is not in this model
      "guardian_contact": None,  # Placeholder, as guardian_contact is not in this
model
      "_id": ObjectId(self.id) if self.id else None,
      "email": self.email
    }

  @staticmethod
  def from_dict(data):
    return Student(
      name=data.get("name"),  # Assuming name is used as full_name
```

```
            oll_no=data.get("roll_no"), # Assuming roll_no is used as roll_number
            class_name=data.get("class_name"),  # Assuming class_name is used as
class_name
            date_of_birth=data.get("date_of_birth"),  # Placeholder, as date_of_birth is not in
this model
            guardian_contact=data.get("guardian_contact"),  # Placeholder, as
guardian_contact is not in this model
            email=data.get("email"),
            _id=data.get("_id")
        )
```

3. auth_py

```
import jwt
import datetime
from flask import Blueprint, request, jsonify
from app import mongo

auth_bp = Blueprint('auth', __name__)
SECRET_KEY="d10952582a68ffc37c05a283d1715aedd5d1890256f73475d8b5972bd6d1
0608"

@auth_bp.route('/login', methods=['POST'])
def login():
    data = request.get_json()
    user = mongo.db.users.find_one({"username": data["username"]})
    if not user or user["password"] != data["password"]:
        return jsonify({"error": "Invalid credentials"}), 401

    token = jwt.encode({
        "user_id": str(user["_id"]),
        "exp": datetime.datetime.utcnow() + datetime.timedelta(hours=2)
    }, SECRET_KEY, algorithm="HS256")

    return jsonify({"token": token})
```

4. dashboard.py

```
from flask import render_template, Blueprint
score_bp = Blueprint('score', __name__)
@score_bp.route('/')
def dashboard():
    return render_template('dashboard.html')
```

5. main.py

```
from flask import Blueprint, render_template

main_bp = Blueprint('main', __name__)

@main_bp.route('/')
def home():
    return render_template('index.html')
```

6. scores.py

```
from flask import Blueprint, request, jsonify
from app import mongo
from datetime import datetime
from bson.objectid import ObjectId
from app.utils.auth_utils import token_required
from flask import send_file
from app.utils.pdf_generator import generate_student_report

score_bp = Blueprint('scores', __name__)

@score_bp.route('/', methods=['POST'])
@token_required
def add_score():
    data = request.get_json()
    required = ["student_id", "subject", "marks_obtained", "total_marks", "exam_date"]
    if not all(k in data for k in required):
        return jsonify({"error": "Missing fields"}), 400

    score = {
        "student_id": ObjectId(data["student_id"]),
        "subject": data["subject"],
        "marks_obtained": int(data["marks_obtained"]),
        "total_marks": int(data["total_marks"]),
        "exam_date": data["exam_date"],
        "created_at": datetime.utcnow(),
        "updated_at": datetime.utcnow()
    }

    mongo.db.scores.insert_one(score)
    return jsonify({"message": "Score added"}), 201

@score_bp.route('/student/<student_id>', methods=['GET'])
```

```
def get_scores_by_student(student_id):
    scores = mongo.db.scores.find({"student_id": ObjectId(student_id)})
    result = []
    for s in scores:
        result.append({
            "subject": s["subject"],
            "marks_obtained": s["marks_obtained"],
            "total_marks": s["total_marks"],
            "exam_date": s["exam_date"]
        })
    return jsonify(result), 200

@score_bp.route('/report/<student_id>', methods=['GET'])
@token_required
def download_report(student_id):
    student = mongo.db.students.find_one({"_id": ObjectId(student_id)})
    if not student:
        return jsonify({"error": "Student not found"}), 404

    scores = list(mongo.db.scores.find({"student_id": ObjectId(student_id)}))
    pdf_buffer = generate_student_report(student, scores)

    filename = f"{student['full_name'].replace(' ', '_')}_Report.pdf"
    return send_file(pdf_buffer, as_attachment=True, download_name=filename,
mimetype='application/pdf')
```

7. students.py

```
from flask import Blueprint, request, jsonify, render_template, send_file
from bson.objectid import ObjectId
from datetime import datetime
from app import mongo
from app.utils.auth_utils import token_required
from app.utils.image_handler import save_image, get_image, delete_image
import io

student_bp = Blueprint('students', __name__)

# ▶️ Add a new student
@student_bp.route('/', methods=['POST'])
@token_required
def add_student():
    data = request.form
    photo = request.files.get('photo')
```

```
    if not all(k in data for k in ("full_name", "roll_number", "class_name", "date_of_birth",
"guardian_contact")):
        return jsonify({"error": "Missing required fields"}), 400

    photo_id = save_image(photo) if photo else None

    student_doc = {
        "full_name": data['full_name'],
        "roll_number": data['roll_number'],
        "class_name": data['class_name'],
        "date_of_birth": data['date_of_birth'],
        "guardian_contact": data['guardian_contact'],
        "photo_id": photo_id,
        "created_at": datetime.utcnow(),
        "updated_at": datetime.utcnow()
    }

    result = mongo.db.students.insert_one(student_doc)
    return jsonify({"message": "Student added successfully", "id": str(result.inserted_id)}),
201

# 📋 Fetch all students
@student_bp.route('/', methods=['GET'])
def get_students():
    students = mongo.db.students.find()
    result = []

    for student in students:
        result.append({
            "id": str(student["_id"]),
            "full_name": student["full_name"],
            "roll_number": student["roll_number"],
            "class_name": student["class_name"],
            "date_of_birth": student["date_of_birth"],
            "guardian_contact": student["guardian_contact"],
            "photo_id": str(student["photo_id"]) if student.get("photo_id") else None,
            "created_at": student["created_at"],
            "updated_at": student["updated_at"]
        })

    return jsonify(result), 200

# 🖼️ Get student photo by ID
@student_bp.route('/photo/<photo_id>', methods=['GET'])
@token_required
def get_photo(photo_id):
```

```
    binary_data, mime, filename = get_image(photo_id)
    if binary_data:
        return send_file(
            io.BytesIO(binary_data),
            mimetype=mime or 'image/jpeg',
            as_attachment=False,
            download_name=filename or 'photo.jpg'
        )
    else:
        return jsonify({"error": "Photo not found"}), 404

# 🗑️ Delete student photo by ID
@student_bp.route('/photo/<photo_id>', methods=['DELETE'])
@token_required
def delete_photo(photo_id):
    if delete_image(photo_id):
        return jsonify({"message": "Photo deleted successfully"}), 200
    else:
        return jsonify({"error": "Photo not found"}), 404

# 📝 Update student details
@student_bp.route('/<student_id>', methods=['PUT'])
@token_required
def update_student(student_id):
    data = request.form
    photo = request.files.get('photo')

    if not all(k in data for k in ("full_name", "roll_number", "class_name", "date_of_birth",
"guardian_contact")):
        return jsonify({"error": "Missing required fields"}), 400

    student_doc = {
        "full_name": data['full_name'],
        "roll_number": data['roll_number'],
        "class_name": data['class_name'],
        "date_of_birth": data['date_of_birth'],
        "guardian_contact": data['guardian_contact'],
        "updated_at": datetime.utcnow()
    }

    if photo:
        photo_id = save_image(photo)
        student_doc["photo_id"] = photo_id

    result = mongo.db.students.update_one({"_id": ObjectId(student_id)}, {"$set":
student_doc})
```

```
    if result.matched_count == 0:
        return jsonify({"error": "Student not found"}), 404

    return jsonify({"message": "Student updated successfully"}), 200

# 🗑️ Delete a student
@student_bp.route('/<student_id>', methods=['DELETE'])
@token_required
def delete_student(student_id):
    result = mongo.db.students.delete_one({"_id": ObjectId(student_id)})

    if result.deleted_count == 0:
        return jsonify({"error": "Student not found"}), 404

    return jsonify({"message": "Student deleted successfully"}), 200

# ▶️ View student
@student_bp.route('/<student_id>', methods=['GET'])
@token_required
def view_student(student_id):
    student = mongo.db.students.find_one({"_id": ObjectId(student_id)})
    if not student:
        return jsonify({"error": "Student not found"}), 404

    scores = list(mongo.db.scores.find({"student_id": ObjectId(student_id)}))

    return render_template('student_detail.html', student=student, scores=scores)

# ▶️ View student scores
@student_bp.route('/<student_id>/scores', methods=['GET'])
@token_required
def view_student_scores(student_id):
    scores = list(mongo.db.scores.find({"student_id": ObjectId(student_id)}))

    if not scores:
        return jsonify({"message": "No scores found for this student"}), 404

    return render_template('student_scores.html', scores=scores)

# ▶️ Add a score for a student
@student_bp.route('/<student_id>/scores', methods=['POST'])
@token_required
def add_student_score(student_id):
    data = request.json

    if not all(k in data for k in ("subject", "score", "date")):
        return jsonify({"error": "Missing required fields"}), 400
```

```
    score_doc = {
        "student_id": ObjectId(student_id),
        "subject": data['subject'],
        "score": data['score'],
        "date": data['date'],
        "created_at": datetime.utcnow(),
        "updated_at": datetime.utcnow()
    }

    result = mongo.db.scores.insert_one(score_doc)
    return jsonify({"message": "Score added successfully", "id": str(result.inserted_id)}),
201

# ▶️ Update a student's score
@student_bp.route('/<student_id>/scores/<score_id>', methods=['PUT'])
@token_required
def update_student_score(student_id, score_id):
    data = request.json

    if not all(k in data for k in ("subject", "score", "date")):
        return jsonify({"error": "Missing required fields"}), 400

    score_doc = {
        "subject": data['subject'],
        "score": data['score'],
        "date": data['date'],
        "updated_at": datetime.utcnow()
    }

    result = mongo.db.scores.update_one(
        {"_id": ObjectId(score_id), "student_id": ObjectId(student_id)},
        {"$set": score_doc}
    )

    if result.matched_count == 0:
        return jsonify({"error": "Score not found"}), 404

    return jsonify({"message": "Score updated successfully"}), 200

# ▶️ Delete a student's score
@student_bp.route('/<student_id>/scores/<score_id>', methods=['DELETE'])
@student_bp.route('/<student_id>/scores/<score_id>', methods=['DELETE'])
@token_required
def delete_student_score(student_id, score_id):
    result = mongo.db.scores.delete_one({"_id": ObjectId(score_id), "student_id":
ObjectId(student_id)})
```

```
    if result.deleted_count == 0:
        return jsonify({"error": "Score not found"}), 404

    return jsonify({"message": "Score deleted successfully"}), 200

score_bp = Blueprint('score', __name__)

@score_bp.route('/')
def dashboard():
    return render_template('dashboard.html')
# Register the blueprint
def register_routes(app):
    app.register_blueprint(student_bp, url_prefix='/students')
    app.register_blueprint(score_bp, url_prefix='/scores')
```

8. _navbar.html

```
<nav class="navbar navbar-expand-lg navbar-dark bg-dark mb-4">
  <div class="container-fluid">
    <a class="navbar-brand" href="/">SPT</a>
    <div class="collapse navbar-collapse">
      <ul class="navbar-nav me-auto">
        <li class="nav-item"><a class="nav-link" href="dashboard">Dashboard</a></li>
        <li class="nav-item"><a class="nav-link" href="students">Students</a></li>
        <li class="nav-item"><a class="nav-link" href="scores/dashboard">Scores</a></li>
        <li class="nav-item"><a class="nav-link" href="scores/analytics">Analytics</a></li>
      </ul>
      <button class="btn btn-outline-light" onclick="logout()">Logout</button>
    </div>
  </div>
</nav>
<script>
  function logout() {
    localStorage.removeItem('token');
    window.location.href = '/login';
  }
</script>
```

9. dashboard.html

```
<script>
 if (!localStorage.getItem('token')) {
  window.location.href = '/login';
 }
</script>

{% include '_navbar.html' %}
<div class="container">
 <h4 class="mb-3">Subject-wise Performance Overview</h4>
 <canvas id="subjectChart" width="600" height="300"></canvas>
</div>
{% comment %} <canvas id="subjectChart" width="400" height="200"></canvas> {%
endcomment %}
<script src="https://cdn.jsdelivr.net/npm/chart.js"></script>
<script>
 async function loadChart() {
  const token = localStorage.getItem('token');
  const res = await fetch('/scores/analytics/subject-averages', {
   headers: { 'Authorization': 'Bearer ' + token }
  });
  const data = await res.json();
  const subjects = data.map(x => x.subject);
  const averages = data.map(x => x.average);

  new Chart(document.getElementById('subjectChart'), {
   type: 'bar',
   data: {
    labels: subjects,
    datasets: [{ label: 'Average %', data: averages, backgroundColor: 'steelblue' }]
   },
   options: { scales: { y: { beginAtZero: true, max: 100 } } }
  });
 }
 loadChart();
</script>
```

10. index.html

```
{% include '_navbar.html' %}
<!DOCTYPE html>
<html>
<head>
 <title>Student Progress Tracker</title>
 <link rel="stylesheet"
href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/css/bootstrap.min.css">
</head>
<body class="p-4">
 <div class="container text-center">
  <h2>Welcome to the Student Progress Tracker</h2>
  <p class="lead">Select a student to view reports or visit the dashboard.</p>
  <a href="/dashboard" class="btn btn-primary mt-3">Go to Dashboard</a>
 </div>
</body>
</html>
```

11. login.html

```
<!DOCTYPE html>
<html>
<head>
 <title>Login | SPT</title>
 <link rel="stylesheet"
href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/css/bootstrap.min.css">
</head>
<body class="p-5">
 <div class="container col-md-4">
  <h3 class="mb-4">Teacher Login</h3>
  <form id="loginForm">
   <input type="text" class="form-control mb-2" name="username"
placeholder="Username" required />
   <input type="password" class="form-control mb-2" name="password"
placeholder="Password" required />
   <button class="btn btn-primary w-100">Log In</button>
  </form>
  <div id="msg" class="mt-3 text-danger"></div>
 </div>

 <script>
  document.getElementById('loginForm').onsubmit = async (e) => {
   e.preventDefault();
   const data = Object.fromEntries(new FormData(e.target).entries());
```

```
    const res = await fetch('/auth/login', {
      method: 'POST',
      headers: {'Content-Type': 'application/json'},
      body: JSON.stringify(data)
    });
    const result = await res.json();
    if (res.ok) {
      localStorage.setItem('token', result.token);
      window.location.href = '/dashboard';  // redirect to dashboard page
    } else {
      document.getElementById('msg').innerText = result.error || 'Login failed';
    }
   };
  </script>
</body>
</html>
```

12. student_detail.html

```
<!DOCTYPE html>
 {% include '_navbar.html' %}
<html>
<head>
 <title>{{ student.full_name }} - Progress Report</title>
 <link rel="stylesheet"
href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/css/bootstrap.min.css">
</head>
<body class="p-4">
 <div class="container">
  <h3>{{ student.full_name }}'s Progress Report</h3>
  <p><strong>Class:</strong> {{ student.class_name }}    <strong>Roll
No:</strong> {{ student.roll_number }}</p>
  <p><strong>Date of Birth:</strong> {{ student.date_of_birth }}</p>

  <hr>

  <h5>Subject Scores</h5>
  <table class="table table-bordered table-striped">
   <thead>
    <tr>
     <th>Subject</th>
     <th>Marks Obtained</th>
     <th>Total Marks</th>
     <th>Exam Date</th>
    </tr>
   </thead>
```

```
    <tbody>
     {% for score in scores %}
     <tr>
      <td>{{ score.subject }}</td>
      <td>{{ score.marks_obtained }}</td>
      <td>{{ score.total_marks }}</td>
      <td>{{ score.exam_date }}</td>
     </tr>
     {% endfor %}
    </tbody>
   </table>

   <div class="mt-4">
    <a href="/scores/report/{{ student._id }}" class="btn btn-outline-primary"
target="_blank">
     Download PDF Report
    </a>
   </div>
  </div>
</body>
</html>
```

13. auth_utils.py

```
from functools import wraps
from flask import request, jsonify
import jwt
import os
from dotenv import load_dotenv

load_dotenv()
SECRET_KEY = os.getenv("SECRET_KEY")

def token_required(f):
    @wraps(f)
    def decorated(*args, **kwargs):
        token = None
        if 'Authorization' in request.headers:
            bearer = request.headers['Authorization']
            token = bearer.split(" ")[1] if " " in bearer else bearer

        if not token:
            return jsonify({'error': 'Token is missing!'}), 401

        try:
            data = jwt.decode(token, SECRET_KEY, algorithms=["HS256"])
```

```
            request.user_id = data['user_id']
        except jwt.ExpiredSignatureError:
            return jsonify({'error': 'Token expired!'}), 401
        except jwt.InvalidTokenError:
            return jsonify({'error': 'Invalid token!'}), 401

        return f(*args, **kwargs)
    return decorated
```

14. imge_handler.py

```
from gridfs import GridFS
from bson.objectid import ObjectId
from flask import current_app

def save_image(file):
    fs = GridFS(current_app.mongo.db)
    return fs.put(file, filename=file.filename)

def get_image(photo_id):
    fs = GridFS(current_app.mongo.db)
    try:
        image = fs.get(ObjectId(photo_id))
        return image.read(), image.content_type, image.filename
    except:
        return None, None, None

def delete_image(photo_id):
    fs = GridFS(current_app.mongo.db)
    try:
        fs.delete(ObjectId(photo_id))
        return True
    except:
        return False
```

15. pdf_generator.py

```
from reportlab.lib.pagesizes import A4
from reportlab.pdfgen import canvas
from io import BytesIO

def generate_student_report(student, scores):
    buffer = BytesIO()
    c = canvas.Canvas(buffer, pagesize=A4)
    width, height = A4
```

```
    # Header
    c.setFont("Helvetica-Bold", 16)
    c.drawString(50, height - 50, f"Progress Report: {student['full_name']}")
    c.setFont("Helvetica", 12)
    c.drawString(50, height - 80, f"Class: {student['class_name']} | Roll No:
{student['roll_number']}")
    c.drawString(50, height - 100, f"Date of Birth: {student['date_of_birth']}")

    # Table Header
    y = height - 140
    c.setFont("Helvetica-Bold", 12)
    c.drawString(50, y, "Subject")
    c.drawString(200, y, "Marks Obtained")
    c.drawString(350, y, "Total Marks")
    c.drawString(470, y, "Exam Date")

    # Table Rows
    c.setFont("Helvetica", 12)
    for score in scores:
        y -= 20
        c.drawString(50, y, score["subject"])
        c.drawString(200, y, str(score["marks_obtained"]))
        c.drawString(350, y, str(score["total_marks"]))
        c.drawString(470, y, score["exam_date"])

    c.showPage()
    c.save()
    buffer.seek(0)
    return buffer
```

16. __init__.py

```
from flask import Flask
from flask_pymongo import PyMongo
from dotenv import load_dotenv
import os

load_dotenv()
SECRET_KEY = os.getenv("SECRET_KEY")

mongo = PyMongo()

def create_app():
    load_dotenv()
    app = Flask(__name__)
```

```
    app.config["MONGO_URI"] = os.getenv("MONGO_URI")

    mongo.init_app(app)

    # Blueprint registration (move these inside the function)
    from app.routes.students import student_bp
    from app.routes.scores import score_bp
    from app.routes.main import main_bp
    app.register_blueprint(main_bp)
    app.register_blueprint(score_bp, url_prefix='/scores')
    app.register_blueprint(student_bp, url_prefix='/students')
    return app

# from flask import Flask
# from flask_pymongo import PyMongo
# from dotenv import load_dotenv
# import os
# from app.routes.scores import score_bp
# app.register_blueprint(score_bp, url_prefix='/scores')
# mongo = PyMongo()

# def create_app():
#     load_dotenv()
#     app = Flask(__name__)
#     app.config["MONGO_URI"] = os.getenv("MONGO_URI")
#     mongo.init_app(app)
#     # Blueprint registration
#     from app.routes.students import student_bp
#     app.register_blueprint(student_bp, url_prefix='/students')
#     return app
```

17. authGuard.js

```
<script src="{{ url_for('static', filename='js/authGuard.js') }}"></script>
```

18. subjectChart.js

```
const token = localStorage.getItem('token');
fetch('/scores/analytics/subject-averages', {
  headers: { 'Authorization': 'Bearer ' + token }
})
.then(res => res.json())
.then(data => {
  const subjects = data.map(x => x.subject);
  const averages = data.map(x => x.average);
```

```
  new Chart(document.getElementById('subjectChart'), {
   type: 'bar',
   data: {
    labels: subjects,
    datasets: [{ label: 'Average %', data: averages, backgroundColor: 'steelblue' }]
   },
   options: { scales: { y: { beginAtZero: true, max: 100 } } }
  });
});
```

19. .env

```
MONGO_URI=mongodb://localhost:27017/spt_db
SECRET_KEY=d10952582a68ffc37c05a283d1715aedd5d1890256f73475d8b5972bd6d10608
```

20. config.py

```
SECRET_KEY="d10952582a68ffc37c05a283d1715aedd5d1890256f73475d8b5972bd6d10608"
```

21. requirements.txt

```
Flask
Flask-PyMongo
pymongo
python-dotenv
gunicorn
reportlab
```

22. run.py

```
from app import create_app

app = create_app()

if __name__ == "__main__":
    app.run(debug=True)
```