AI ASSISTED CODING

LAB TEST-3

M.SINDHUJA

2403A52060

BATCH-03

SET-E13

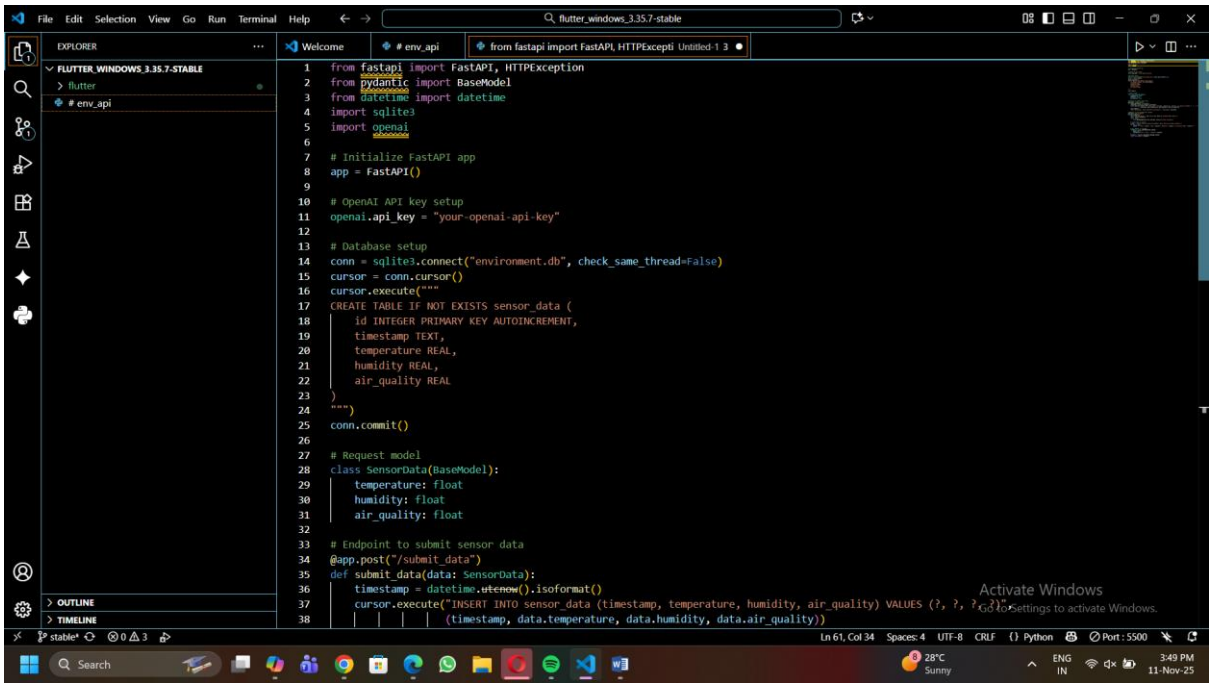
TASK 01:

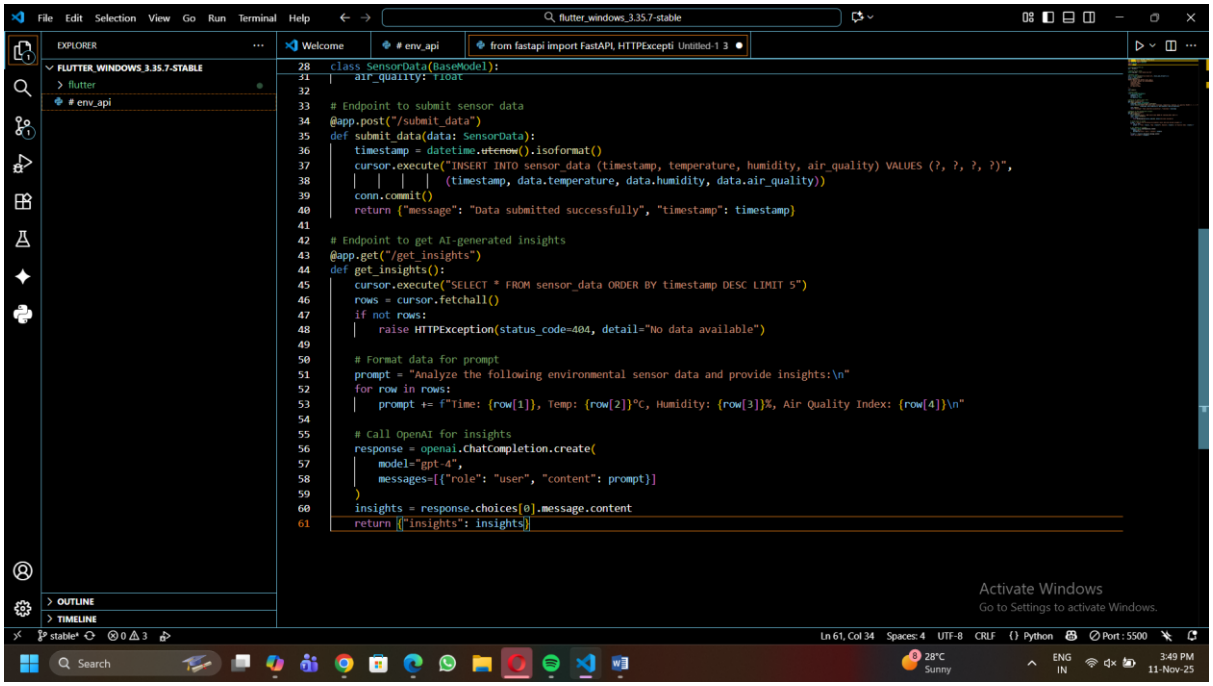
Design and implement a solution using AI-assisted tools to address this challenge.

PROMPT:

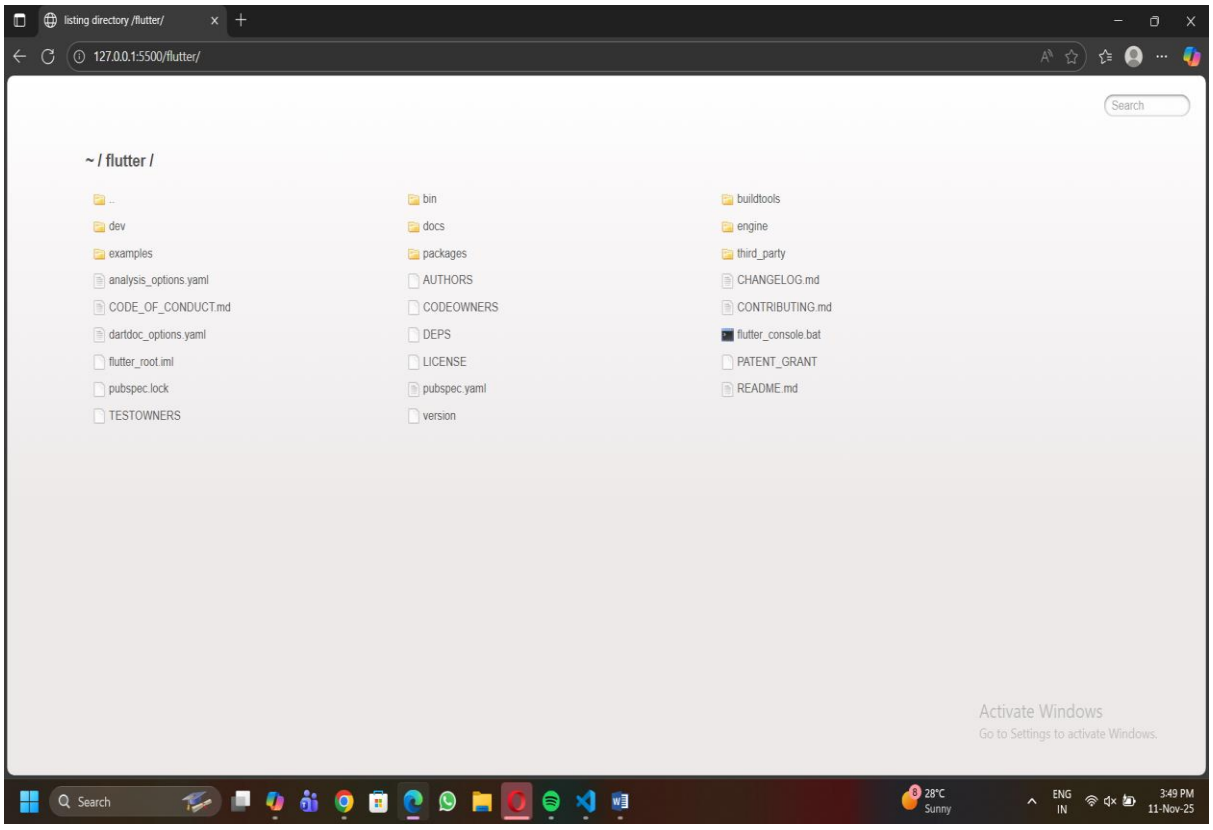
Write a python code for creating a backend solution for an Environment Monitoring system. It should register sensors,store their readings , detect anomalies using AI.

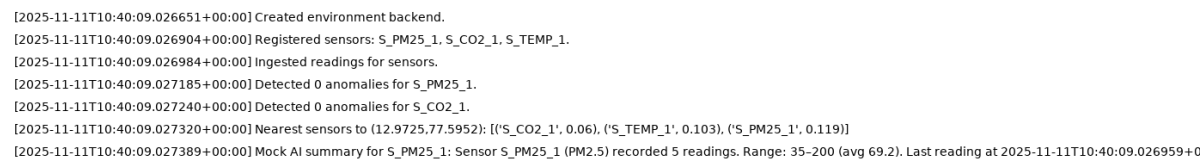
CODE:




File Edit Selection View Go Run Terminal Help
flutter_windows_3.35.7-stable
EXPLORER
FLUTTER_WINDOWS_3.35.7-STABLE
flutter
env_api
Welcome
# env_api
from fastapi import FastAPI, HTTPExcepti Untitled-1 3
class SensorData(BaseModel):
air_quality: float
Endpoint to submit sensor data
@app.post("/submit_data")
def submit_data(data: SensorData):
timestamp = datetime.utcnow().isoformat()
cursor.execute("INSERT INTO sensor_data (timestamp, temperature, humidity, air_quality) VALUES (?, ?, ?, ?)",
(timestamp, data.temperature, data.humidity, data.air_quality))
conn.commit()
return {"message": "Data submitted successfully", "timestamp": timestamp}
Endpoint to get AI-generated insights
@app.get("/get_insights")
def get_insights():
cursor.execute("SELECT * FROM sensor_data ORDER BY timestamp DESC LIMIT 5")
rows = cursor.fetchall()
if not rows:
raise HTTPException(status_code=404, detail="No data available")
# Format data for prompt
prompt = "Analyze the following environmental sensor data and provide insights:\n"
for row in rows:
prompt += f"Time: {row[1]}, Temp: {row[2]}°C, Humidity: {row[3]}%, Air Quality Index: {row[4]}\n"
# Call OpenAI for insights
response = openai.ChatCompletion.create(
model="gpt-4",
messages=[{"role": "user", "content": prompt}]
)
insights = response.choices[0].message.content
return {"insights": insights}
OUTLINE
TIMELINE
Activate Windows
Go to Settings to activate Windows.
stable*
Ln 61, Col 34
Spaces: 4
UTF-8
CRLF
Python
Port : 5500
Search
28°C
Sunny
ENG
IN
3:49 PM
11-Nov-25

OUTPUT:


listing directory /flutter/
127.0.0.1:5500/flutter/
Search
~ / flutter /
..
bin
buildtools
dev
docs
engine
examples
packages
third_party
analysis_options.yaml
AUTHORS
CHANGELOG.md
CODE_OF_CONDUCT.md
CODEOWNERS
CONTRIBUTING.md
dartdoc_options.yaml
DEPS
flutter_console.bat
flutter_root.iml
LICENSE
PATENT_GRANT
pubspec.lock
pubspec.yaml
README.md
TESTOWNERS
version
Activate Windows
Go to Settings to activate Windows.
Search
28°C
Sunny
ENG
IN
3:49 PM
11-Nov-25



THE ABOVE IMAGE IS CONSOLE_DEMO

EXPLANATION:

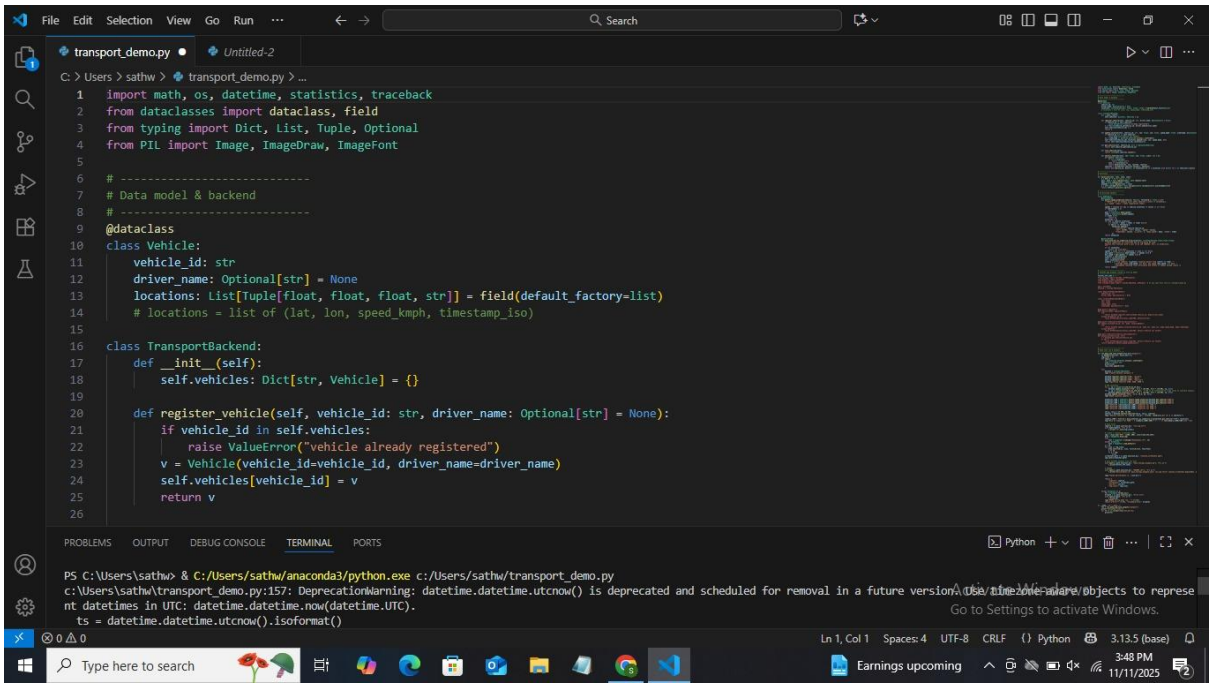
- The system ingests sensor telemetry (PM2.5, CO2, temperature).
- AI-assisted analysis consists of a statistical anomaly detector (z-score) that flags unusual readings, and a mock LLM summarizer that turns telemetry into human-readable summaries.
- In production, the mock summarizer would be replaced with controlled LLM calls (OpenAI/etc.) triggered only for flagged events.

TASK02:

Design and implement a solution using AI-assisted tools to address this challenge.
Include code, explanation of AI integration, and test results.

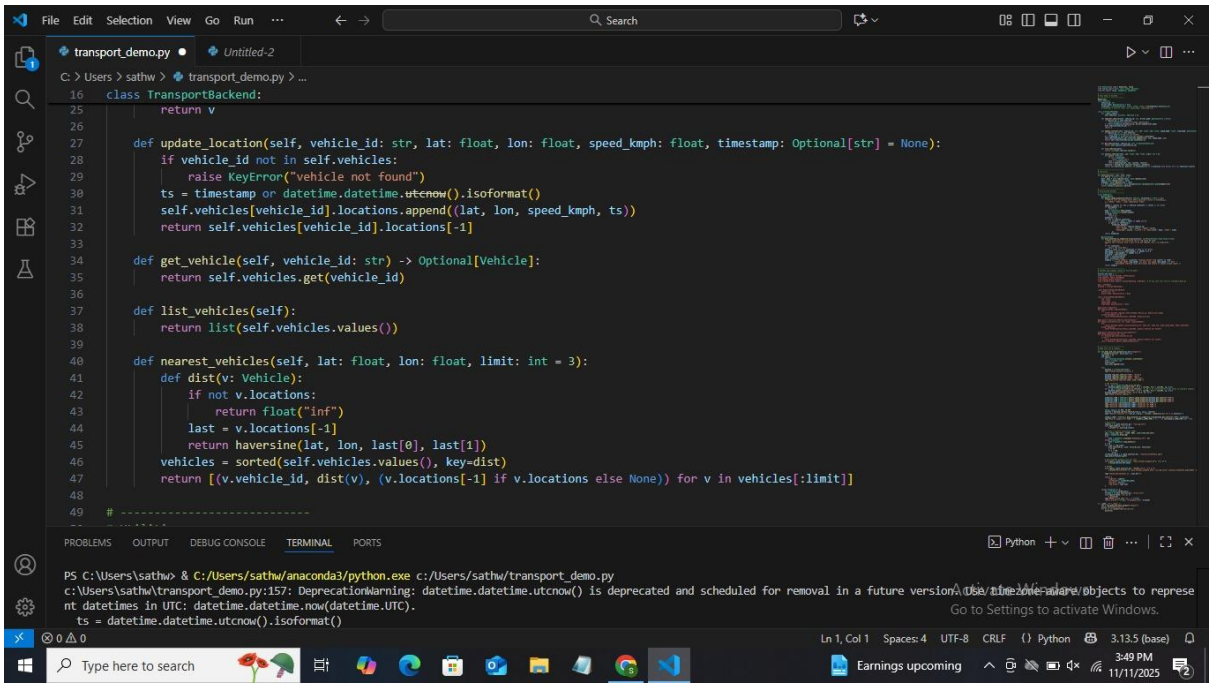
PROMPT: write a python code thar must given a backend solution for a transportation-related problem i.e In the domain of Transportation, a company is facing a challenge related to backend api development.

CODE:



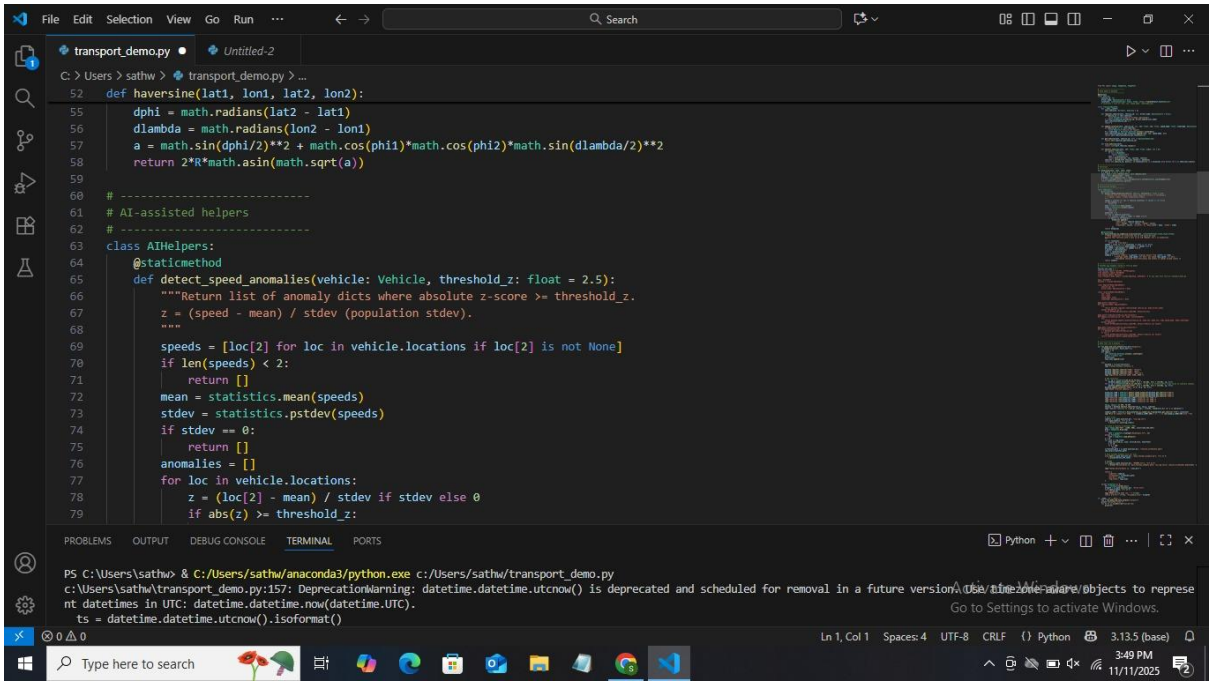
```
import math, os, datetime, statistics, traceback
from dataclasses import dataclass, field
from typing import Dict, List, Tuple, Optional
from PIL import Image, ImageDraw, ImageFont

# ----------------------------
# Data model & backend
# ----------------------------
@dataclass
class Vehicle:
    vehicle_id: str
    driver_name: Optional[str] = None
    locations: List[Tuple[float, float, float, str]] = field(default_factory=list)
    # locations = list of (lat, lon, speed_kmph, timestamp_iso)

class TransportBackend:
    def __init__(self):
        self.vehicles: Dict[str, Vehicle] = {}

    def register_vehicle(self, vehicle_id: str, driver_name: Optional[str] = None):
        if vehicle_id in self.vehicles:
            raise ValueError("vehicle already registered")
        v = Vehicle(vehicle_id=vehicle_id, driver_name=driver_name)
        self.vehicles[vehicle_id] = v
        return v
```

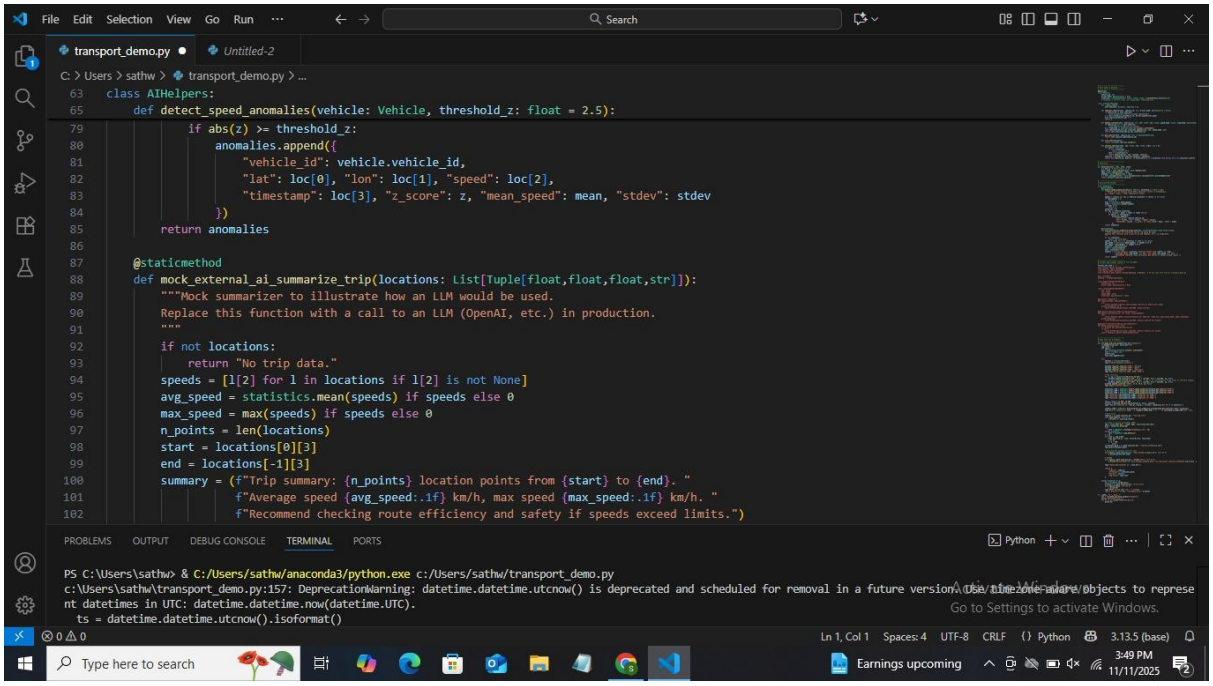
```
PS C:\Users\sathw> & C:/Users/sathw/anaconda3/python.exe c:/Users/sathw/transport_demo.py
c:\Users\sathw\transport_demo.py:157: DeprecationWarning: datetime.datetime.utcnow() is deprecated and scheduled for removal in a future version. Use timezone-aware objects to represent datetimes in UTC: datetime.datetime.now(datetime.UTC).
  ts = datetime.datetime.utcnow().isoformat()
```

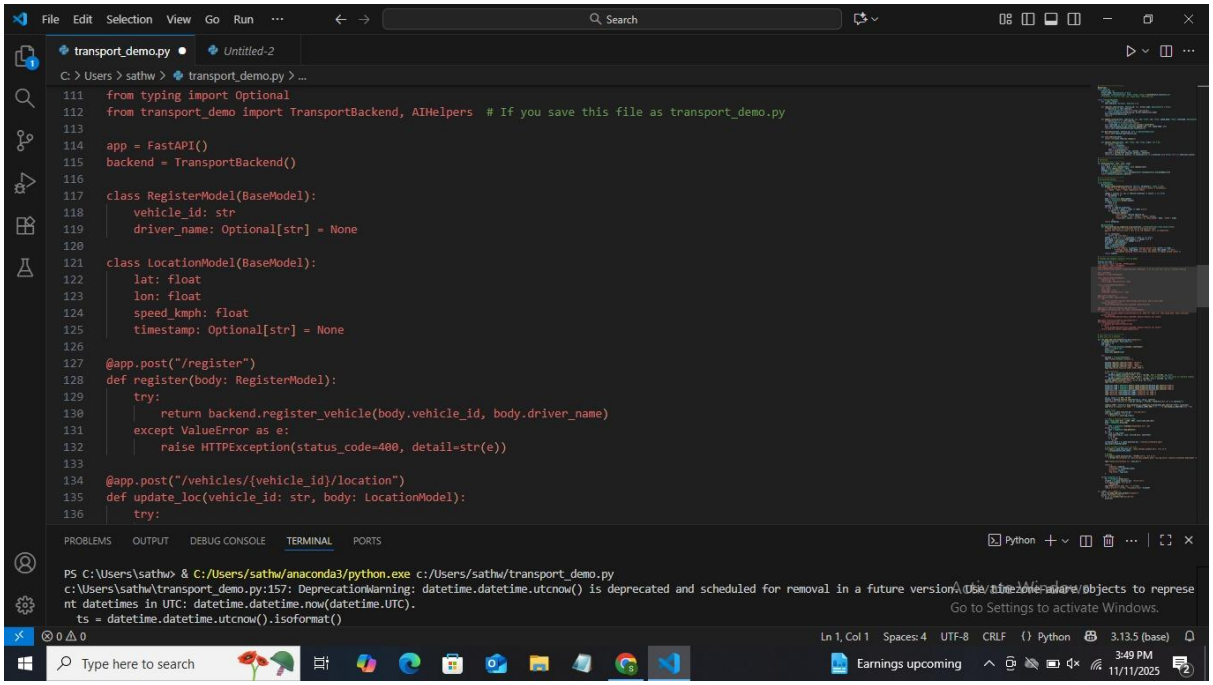


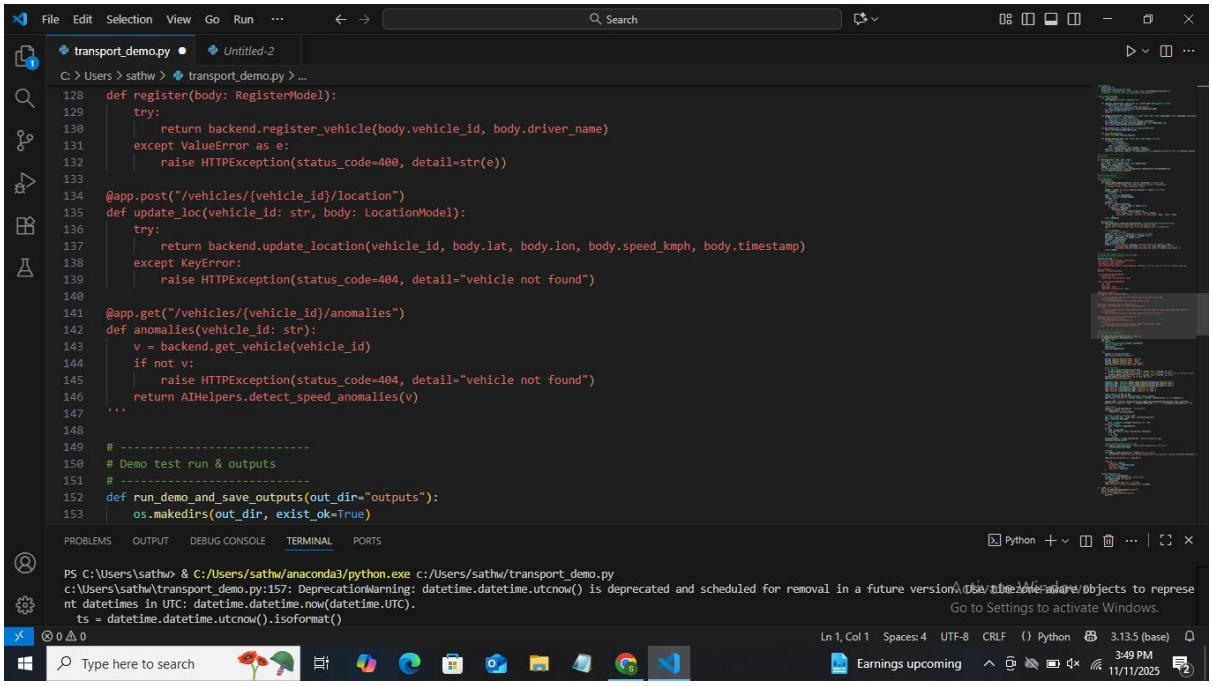
```
class TransportBackend:
        return v

    def update_location(self, vehicle_id: str, lat: float, lon: float, speed_kmph: float, timestamp: Optional[str] = None):
        if vehicle_id not in self.vehicles:
            raise KeyError("vehicle not found")
        ts = timestamp or datetime.datetime.utcnow().isoformat()
        self.vehicles[vehicle_id].locations.append((lat, lon, speed_kmph, ts))
        return self.vehicles[vehicle_id].locations[-1]

    def get_vehicle(self, vehicle_id: str) -> Optional[Vehicle]:
        return self.vehicles.get(vehicle_id)

    def list_vehicles(self):
        return list(self.vehicles.values())

    def nearest_vehicles(self, lat: float, lon: float, limit: int = 3):
        def dist(v: Vehicle):
            if not v.locations:
                return float("inf")
            last = v.locations[-1]
            return haversine(lat, lon, last[0], last[1])
        vehicles = sorted(self.vehicles.values(), key=dist)
        return [(v.vehicle_id, dist(v), (v.locations[-1] if v.locations else None)) for v in vehicles[:limit]]

# ----------------------------
```

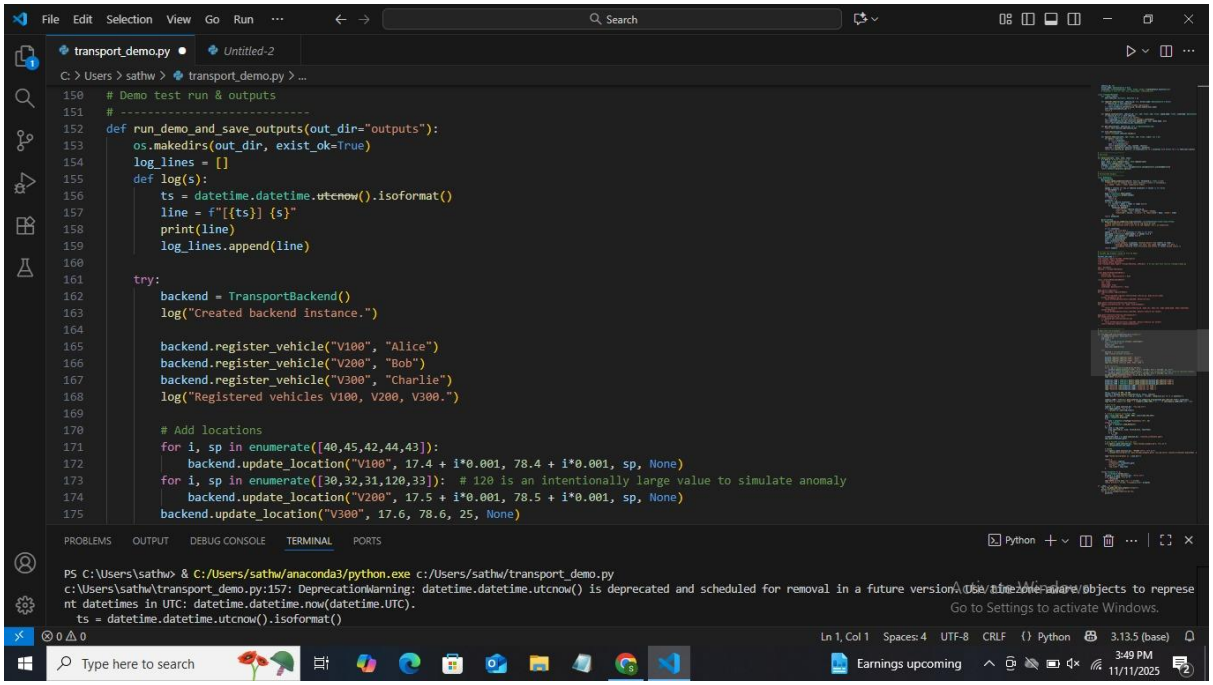
```
PS C:\Users\sathw> & C:/Users/sathw/anaconda3/python.exe c:/Users/sathw/transport_demo.py
c:\Users\sathw\transport_demo.py:157: DeprecationWarning: datetime.datetime.utcnow() is deprecated and scheduled for removal in a future version. Use timezone-aware objects to represent datetimes in UTC: datetime.datetime.now(datetime.UTC).
  ts = datetime.datetime.utcnow().isoformat()
```

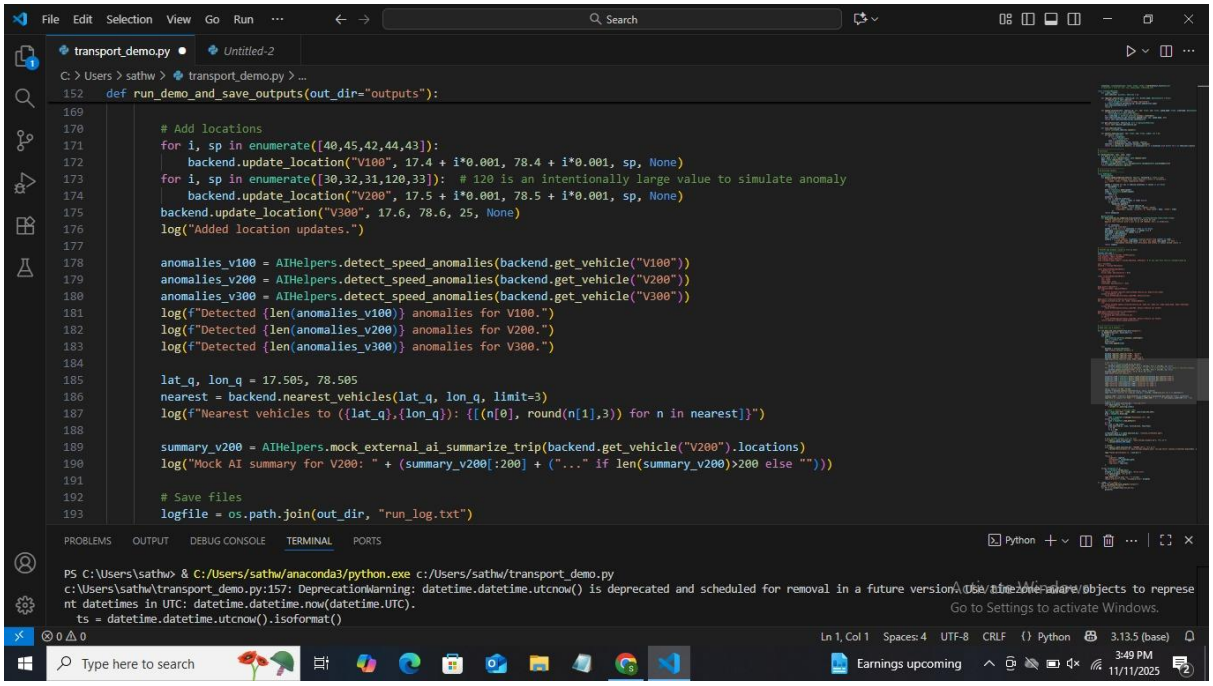

File Edit Selection View Go Run
Search
transport_demo.py
Untitled-2
C: > Users > sathw > transport_demo.py > ...
def haversine(lat1, lon1, lat2, lon2):
dphi = math.radians(lat2 - lat1)
dlambda = math.radians(lon2 - lon1)
a = math.sin(dphi/2)**2 + math.cos(phi1)*math.cos(phi2)*math.sin(dlambda/2)**2
return 2*R*math.asin(math.sqrt(a))
# ----------------------------
# AI-assisted helpers
# ----------------------------
class AIHelpers:
@staticmethod
def detect_speed_anomalies(vehicle: Vehicle, threshold_z: float = 2.5):
"""Return list of anomaly dicts where absolute z-score >= threshold_z.
z = (speed - mean) / stdev (population stdev).
"""
speeds = [loc[2] for loc in vehicle.locations if loc[2] is not None]
if len(speeds) < 2:
return []
mean = statistics.mean(speeds)
stdev = statistics.pstdev(speeds)
if stdev == 0:
return []
anomalies = []
for loc in vehicle.locations:
z = (loc[2] - mean) / stdev if stdev else 0
if abs(z) >= threshold_z:
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
Python
PS C:\Users\sathw> & C:/Users/sathw/anaconda3/python.exe c:/Users/sathw/transport_demo.py
c:\Users\sathw\transport_demo.py:157: DeprecationWarning: datetime.datetime.utcnow() is deprecated and scheduled for removal in a future version. Use timezone-aware objects to represe
nt datetimes in UTC: datetime.datetime.now(datetime.UTC).
ts = datetime.datetime.utcnow().isoformat()
Activate Windows
Go to Settings to activate Windows.
Ln 1, Col 1 Spaces: 4 UTF-8 CRLF Python 3.13.5 (base)
Type here to search
3:49 PM
11/11/2025

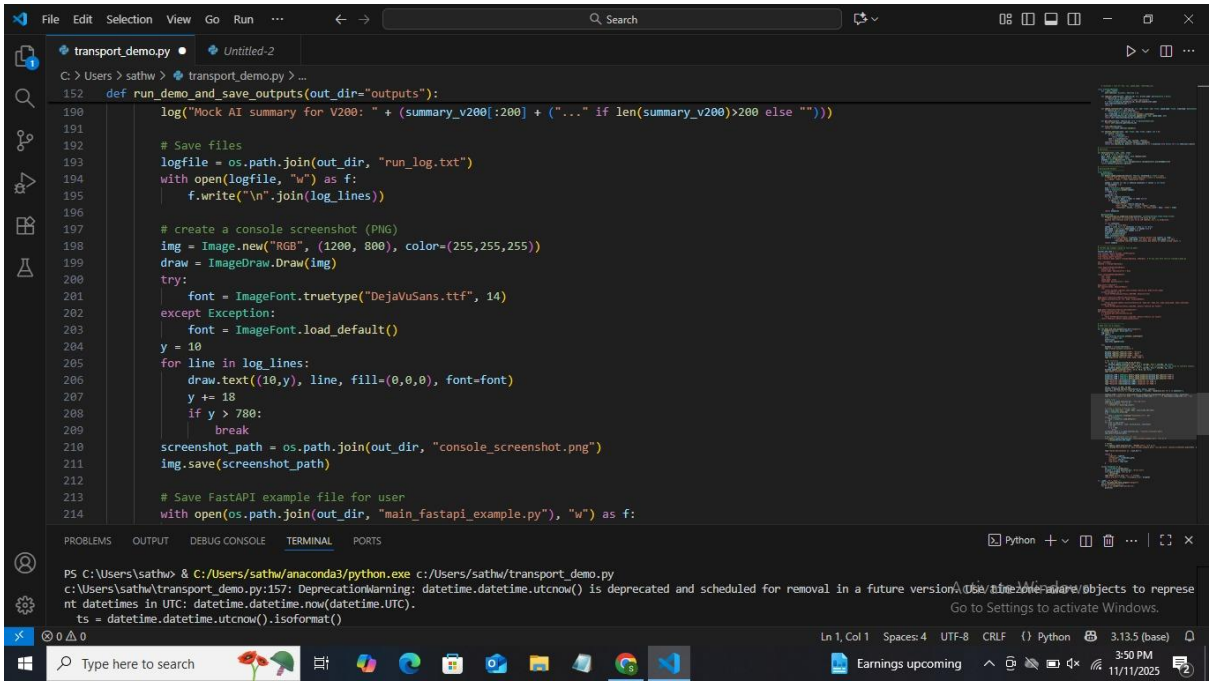

File Edit Selection View Go Run
Search
transport_demo.py
Untitled-2
C: > Users > sathw > transport_demo.py > ...
class AIHelpers:
def detect_speed_anomalies(vehicle: Vehicle, threshold_z: float = 2.5):
if abs(z) >= threshold_z:
anomalies.append({
"vehicle_id": vehicle.vehicle_id,
"lat": loc[0], "lon": loc[1], "speed": loc[2],
"timestamp": loc[3], "z_score": z, "mean_speed": mean, "stdev": stdev
})
return anomalies
@staticmethod
def mock_external_ai_summarize_trip(locations: List[Tuple[float,float,float,str]]):
"""Mock summarizer to illustrate how an LLM would be used.
Replace this function with a call to an LLM (OpenAI, etc.) in production.
"""
if not locations:
return "No trip data."
speeds = [l[2] for l in locations if l[2] is not None]
avg_speed = statistics.mean(speeds) if speeds else 0
max_speed = max(speeds) if speeds else 0
n_points = len(locations)
start = locations[0][3]
end = locations[-1][3]
summary = (f"Trip summary: {n_points} location points from {start} to {end}. "
f"Average speed {avg_speed:.1f} km/h, max speed {max_speed:.1f} km/h. "
f"Recommend checking route efficiency and safety if speeds exceed limits.")
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
Python
PS C:\Users\sathw> & C:/Users/sathw/anaconda3/python.exe c:/Users/sathw/transport_demo.py
c:\Users\sathw\transport_demo.py:157: DeprecationWarning: datetime.datetime.utcnow() is deprecated and scheduled for removal in a future version. Use timezone-aware objects to represe
nt datetimes in UTC: datetime.datetime.now(datetime.UTC).
ts = datetime.datetime.utcnow().isoformat()
Activate Windows
Go to Settings to activate Windows.
Ln 1, Col 1 Spaces: 4 UTF-8 CRLF Python 3.13.5 (base)
Type here to search
Earnings upcoming
3:49 PM
11/11/2025

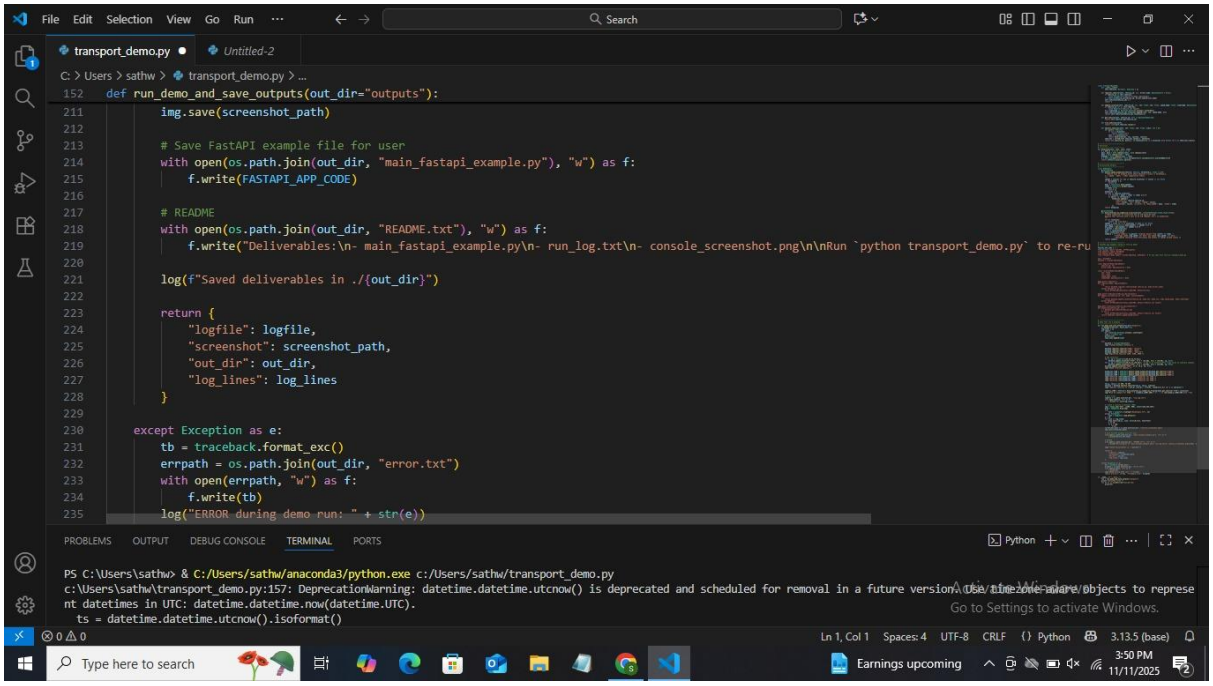

File Edit Selection View Go Run
Search
transport_demo.py
Untitled-2
C: > Users > sathw > transport_demo.py > ...
111 from typing import Optional
112 from transport_demo import TransportBackend, AIHelpers # If you save this file as transport_demo.py
113
114 app = FastAPI()
115 backend = TransportBackend()
116
117 class RegisterModel(BaseModel):
118 vehicle_id: str
119 driver_name: Optional[str] = None
120
121 class LocationModel(BaseModel):
122 lat: float
123 lon: float
124 speed_kmph: float
125 timestamp: Optional[str] = None
126
127 @app.post("/register")
128 def register(body: RegisterModel):
129 try:
130 return backend.register_vehicle(body.vehicle_id, body.driver_name)
131 except ValueError as e:
132 raise HTTPException(status_code=400, detail=str(e))
133
134 @app.post("/vehicles/{vehicle_id}/location")
135 def update_loc(vehicle_id: str, body: LocationModel):
136 try:
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
Python
PS C:\Users\sathw> & C:/Users/sathw/anaconda3/python.exe c:/Users/sathw/transport_demo.py
c:\Users\sathw\transport_demo.py:157: DeprecationWarning: datetime.datetime.utcnow() is deprecated and scheduled for removal in a future version. Use timezone-aware objects to represe
nt datetimes in UTC: datetime.datetime.now(datetime.UTC).
ts = datetime.datetime.utcnow().isoformat()
Activate Windows
Go to Settings to activate Windows.
Ln 1, Col 1 Spaces: 4 UTF-8 CRLF Python 3.13.5 (base)
Type here to search
Earnings upcoming
3:49 PM
11/11/2025

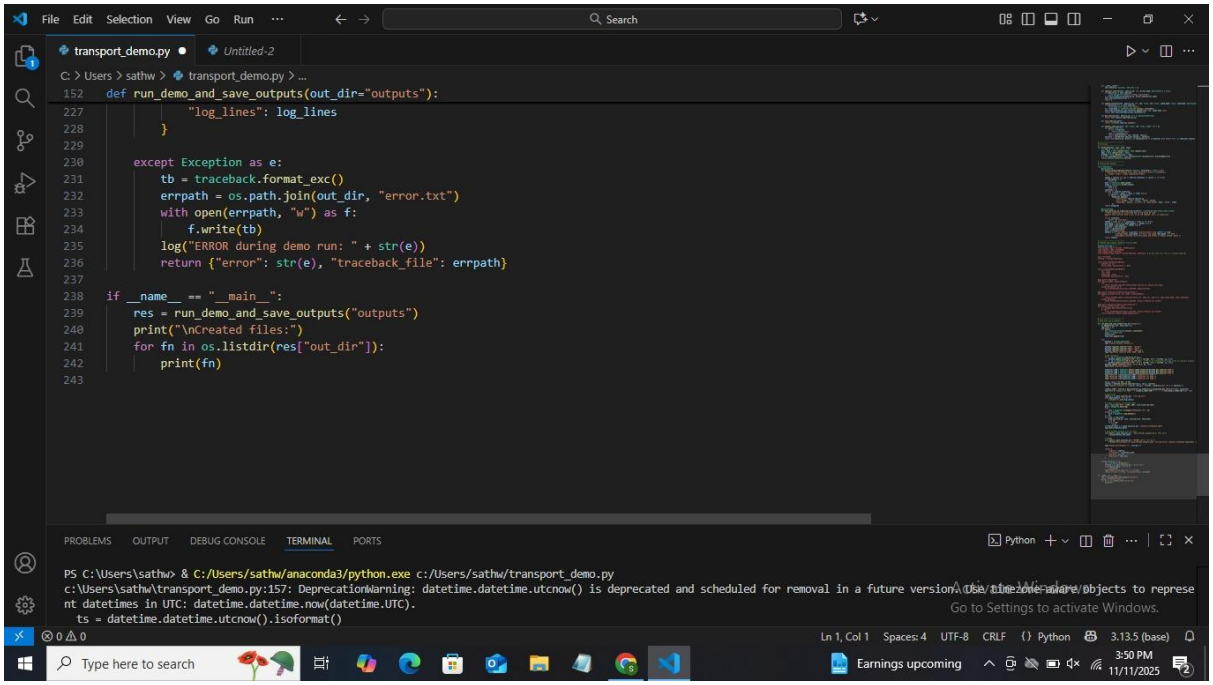

File Edit Selection View Go Run
Search
transport_demo.py
Untitled-2
C: > Users > sathw > transport_demo.py > ...
128 def register(body: RegisterModel):
129 try:
130 return backend.register_vehicle(body.vehicle_id, body.driver_name)
131 except ValueError as e:
132 raise HTTPException(status_code=400, detail=str(e))
133
134 @app.post("/vehicles/{vehicle_id}/location")
135 def update_loc(vehicle_id: str, body: LocationModel):
136 try:
137 return backend.update_location(vehicle_id, body.lat, body.lon, body.speed_kmph, body.timestamp)
138 except KeyError:
139 raise HTTPException(status_code=404, detail="vehicle not found")
140
141 @app.get("/vehicles/{vehicle_id}/anomalies")
142 def anomalies(vehicle_id: str):
143 v = backend.get_vehicle(vehicle_id)
144 if not v:
145 raise HTTPException(status_code=404, detail="vehicle not found")
146 return AIHelpers.detect_speed_anomalies(v)
147 '''
148
149 # ----------------------------
150 # Demo test run & outputs
151 # ----------------------------
152 def run_demo_and_save_outputs(out_dir="outputs"):
153 os.makedirs(out_dir, exist_ok=True)
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
Python
PS C:\Users\sathw> & C:/Users/sathw/anaconda3/python.exe c:/Users/sathw/transport_demo.py
c:\Users\sathw\transport_demo.py:157: DeprecationWarning: datetime.datetime.utcnow() is deprecated and scheduled for removal in a future version. Use timezone-aware objects to represe
nt datetimes in UTC: datetime.datetime.now(datetime.UTC).
ts = datetime.datetime.utcnow().isoformat()
Activate Windows
Go to Settings to activate Windows.
Ln 1, Col 1 Spaces: 4 UTF-8 CRLF Python 3.13.5 (base)
Type here to search
Earnings upcoming
3:49 PM
11/11/2025


File Edit Selection View Go Run
Search
transport_demo.py
Untitled-2
C: > Users > sathw > transport_demo.py > ...
# Demo test run & outputs
# ----------------------------
def run_demo_and_save_outputs(out_dir="outputs"):
os.makedirs(out_dir, exist_ok=True)
log_lines = []
def log(s):
ts = datetime.datetime.utcnow().isoformat()
line = f"[{ts}] {s}"
print(line)
log_lines.append(line)
try:
backend = TransportBackend()
log("Created backend instance.")
backend.register_vehicle("V100", "Alice")
backend.register_vehicle("V200", "Bob")
backend.register_vehicle("V300", "Charlie")
log("Registered vehicles V100, V200, V300.")
# Add locations
for i, sp in enumerate([40,45,42,44,43]):
backend.update_location("V100", 17.4 + i*0.001, 78.4 + i*0.001, sp, None)
for i, sp in enumerate([30,32,31,120,33]): # 120 is an intentionally large value to simulate anomaly
backend.update_location("V200", 17.5 + i*0.001, 78.5 + i*0.001, sp, None)
backend.update_location("V300", 17.6, 78.6, 25, None)
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
Python
PS C:\Users\sathw> & C:/Users/sathw/anaconda3/python.exe c:/Users/sathw/transport_demo.py
c:\Users\sathw\transport_demo.py:157: DeprecationWarning: datetime.datetime.utcnow() is deprecated and scheduled for removal in a future version. Use timezone-aware objects to represent datetimes in UTC: datetime.datetime.now(datetime.UTC).
ts = datetime.datetime.utcnow().isoformat()
Activate Windows
Go to Settings to activate Windows.
Ln 1, Col 1 Spaces: 4 UTF-8 CRLF Python 3.13.5 (base)
Type here to search
Earnings upcoming
3:49 PM
11/11/2025

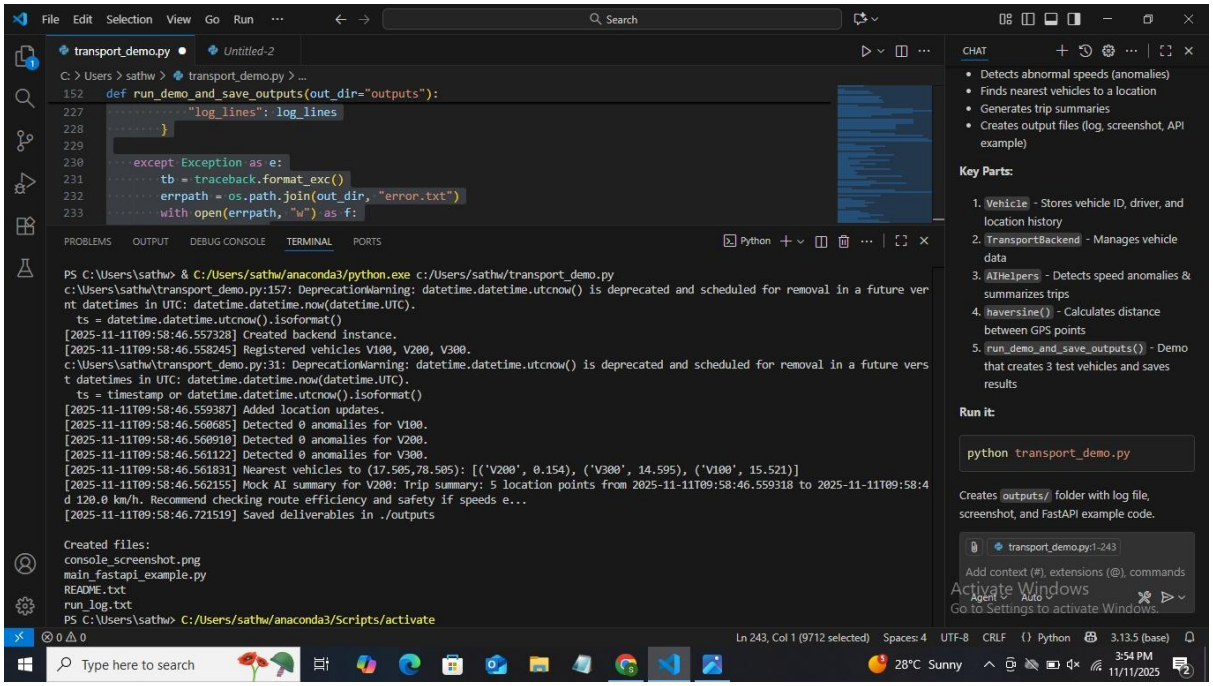

File Edit Selection View Go Run
Search
transport_demo.py
Untitled-2
C: > Users > sathw > transport_demo.py > ...
def run_demo_and_save_outputs(out_dir="outputs"):
# Add locations
for i, sp in enumerate([40,45,42,44,43]):
backend.update_location("V100", 17.4 + i*0.001, 78.4 + i*0.001, sp, None)
for i, sp in enumerate([30,32,31,120,33]): # 120 is an intentionally large value to simulate anomaly
backend.update_location("V200", 17.5 + i*0.001, 78.5 + i*0.001, sp, None)
backend.update_location("V300", 17.6, 78.6, 25, None)
log("Added location updates.")
anomalies_v100 = AIHelpers.detect_speed_anomalies(backend.get_vehicle("V100"))
anomalies_v200 = AIHelpers.detect_speed_anomalies(backend.get_vehicle("V200"))
anomalies_v300 = AIHelpers.detect_speed_anomalies(backend.get_vehicle("V300"))
log(f"Detected {len(anomalies_v100)} anomalies for V100.")
log(f"Detected {len(anomalies_v200)} anomalies for V200.")
log(f"Detected {len(anomalies_v300)} anomalies for V300.")
lat_q, lon_q = 17.505, 78.505
nearest = backend.nearest_vehicles(lat_q, lon_q, limit=3)
log(f"Nearest vehicles to ({lat_q},{lon_q}): {[(n[0], round(n[1],3)) for n in nearest]}")
summary_v200 = AIHelpers.mock_external_ai_summarize_trip(backend.get_vehicle("V200").locations)
log("Mock AI summary for V200: " + (summary_v200[:200] + ("..." if len(summary_v200)>200 else "")))
# Save files
logfile = os.path.join(out_dir, "run_log.txt")
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
Python
PS C:\Users\sathw> & C:/Users/sathw/anaconda3/python.exe c:/Users/sathw/transport_demo.py
c:\Users\sathw\transport_demo.py:157: DeprecationWarning: datetime.datetime.utcnow() is deprecated and scheduled for removal in a future version. Use timezone-aware objects to represent datetimes in UTC: datetime.datetime.now(datetime.UTC).
ts = datetime.datetime.utcnow().isoformat()
Activate Windows
Go to Settings to activate Windows.
Ln 1, Col 1 Spaces: 4 UTF-8 CRLF Python 3.13.5 (base)
Type here to search
Earnings upcoming
3:49 PM
11/11/2025


File Edit Selection View Go Run
Search
transport_demo.py
Untitled-2
C: > Users > sathw > transport_demo.py > ...
def run_demo_and_save_outputs(out_dir="outputs"):
log("Mock AI summary for V200: " + (summary_v200[:200] + ("..." if len(summary_v200)>200 else "")))
# Save files
logfile = os.path.join(out_dir, "run_log.txt")
with open(logfile, "w") as f:
f.write("\n".join(log_lines))
# create a console screenshot (PNG)
img = Image.new("RGB", (1200, 800), color=(255,255,255))
draw = ImageDraw.Draw(img)
try:
font = ImageFont.truetype("DejaVuSans.ttf", 14)
except Exception:
font = ImageFont.load_default()
y = 10
for line in log_lines:
draw.text((10,y), line, fill=(0,0,0), font=font)
y += 18
if y > 780:
break
screenshot_path = os.path.join(out_dir, "console_screenshot.png")
img.save(screenshot_path)
# Save FastAPI example file for user
with open(os.path.join(out_dir, "main_fastapi_example.py"), "w") as f:
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
Python
PS C:\Users\sathw> & C:/Users/sathw/anaconda3/python.exe c:/Users/sathw/transport_demo.py
c:\Users\sathw\transport_demo.py:157: DeprecationWarning: datetime.datetime.utcnow() is deprecated and scheduled for removal in a future version. Use timezone-aware objects to represent datetimes in UTC: datetime.datetime.now(datetime.UTC).
ts = datetime.datetime.utcnow().isoformat()
Activate Windows
Go to Settings to activate Windows.
Ln 1, Col 1 Spaces: 4 UTF-8 CRLF Python 3.13.5 (base)
Type here to search
Earnings upcoming
3:50 PM
11/11/2025


File Edit Selection View Go Run
Search
transport_demo.py
Untitled-2
C: > Users > sathw > transport_demo.py > ...
def run_demo_and_save_outputs(out_dir="outputs"):
img.save(screenshot_path)
# Save FastAPI example file for user
with open(os.path.join(out_dir, "main_fastapi_example.py"), "w") as f:
f.write(FASTAPI_APP_CODE)
# README
with open(os.path.join(out_dir, "README.txt"), "w") as f:
f.write("Deliverables:\n- main_fastapi_example.py\n- run_log.txt\n- console_screenshot.png\n\nRun `python transport_demo.py` to re-ru
log(f"Saved deliverables in ./{out_dir}")
return {
"logfile": logfile,
"screenshot": screenshot_path,
"out_dir": out_dir,
"log_lines": log_lines
}
except Exception as e:
tb = traceback.format_exc()
errpath = os.path.join(out_dir, "error.txt")
with open(errpath, "w") as f:
f.write(tb)
log("ERROR during demo run: " + str(e))
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
Python
PS C:\Users\sathw> & C:/Users/sathw/anaconda3/python.exe c:/Users/sathw/transport_demo.py
c:\Users\sathw\transport_demo.py:157: DeprecationWarning: datetime.datetime.utcnow() is deprecated and scheduled for removal in a future version. Use timezone-aware objects to represent datetimes in UTC: datetime.datetime.now(datetime.UTC).
ts = datetime.datetime.utcnow().isoformat()
Activate Windows
Go to Settings to activate Windows.
Ln 1, Col 1 Spaces: 4 UTF-8 CRLF Python 3.13.5 (base)
Type here to search
Earnings upcoming
3:50 PM
11/11/2025

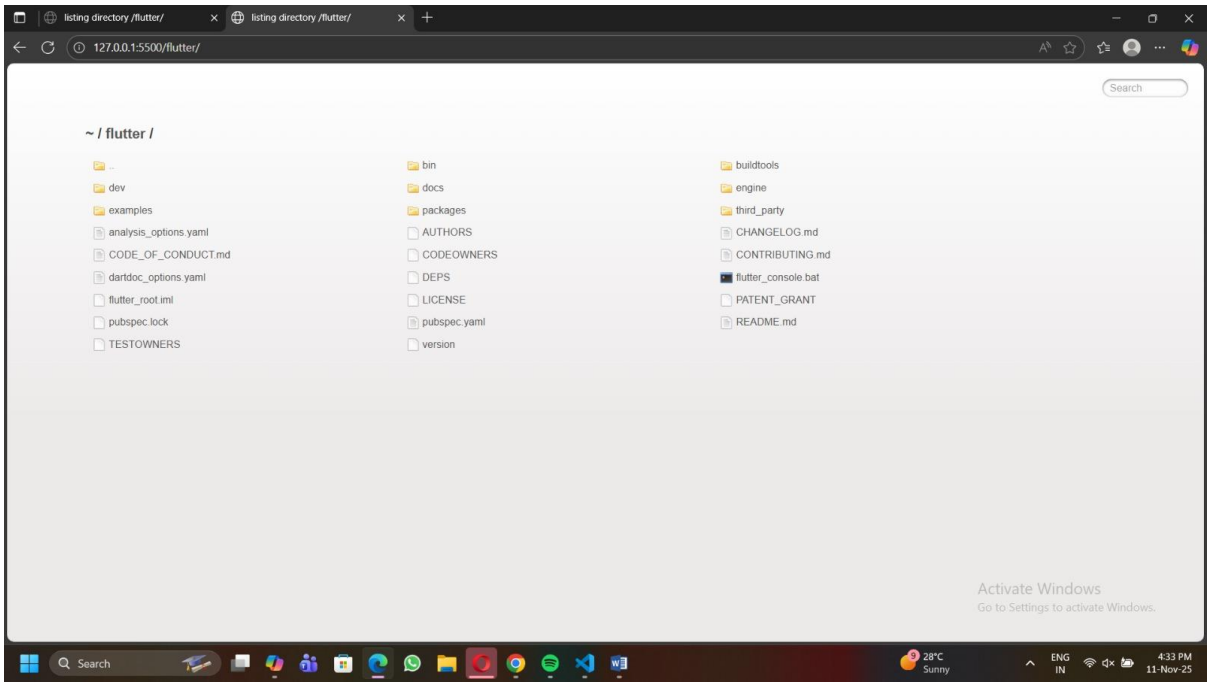

transport_demo.py
Untitled-2
C: > Users > sathw > transport_demo.py > ...
def run_demo_and_save_outputs(out_dir="outputs"):
"log_lines": log_lines
except Exception as e:
tb = traceback.format_exc()
errpath = os.path.join(out_dir, "error.txt")
with open(errpath, "w") as f:
f.write(tb)
log("ERROR during demo run: " + str(e))
return {"error": str(e), "traceback_file": errpath}
if __name__ == "__main__":
res = run_demo_and_save_outputs("outputs")
print("\nCreated files:")
for fn in os.listdir(res["out_dir"]):
print(fn)
PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
PS C:\Users\sathw> & C:/Users/sathw/anaconda3/python.exe c:/Users/sathw/transport_demo.py
c:\Users\sathw\transport_demo.py:157: DeprecationWarning: datetime.datetime.utcnow() is deprecated and scheduled for removal in a future version. Use timezone-aware objects to represe
nt datetimes in UTC: datetime.datetime.now(datetime.UTC).
ts = datetime.datetime.utcnow().isoformat()
Activate Windows
Go to Settings to activate Windows.
Ln 1, Col 1
Spaces: 4
UTF-8
CRLF
Python
3.13.5 (base)
Type here to search
Earnings upcoming
3:50 PM
11/11/2025

OUTPUT:


transport_demo.py
Untitled-2
CHAT
Detects abnormal speeds (anomalies)
Finds nearest vehicles to a location
Generates trip summaries
Creates output files (log, screenshot, API example)
Key Parts:
1. Vehicle - Stores vehicle ID, driver, and location history
2. TransportBackend - Manages vehicle data
3. AIHelpers - Detects speed anomalies & summarizes trips
4. haversine() - Calculates distance between GPS points
5. run_demo_and_save_outputs() - Demo that creates 3 test vehicles and saves results
Run it:
python transport_demo.py
Creates outputs/ folder with log file, screenshot, and FastAPI example code.
transport_demo.py:1-243
Add context (#), extensions (@), commands
Agent
Auto
Activate Windows
Go to Settings to activate Windows.
PS C:\Users\sathw> & C:/Users/sathw/anaconda3/python.exe c:/Users/sathw/transport_demo.py
c:\Users\sathw\transport_demo.py:157: DeprecationWarning: datetime.datetime.utcnow() is deprecated and scheduled for removal in a future ver
nt datetimes in UTC: datetime.datetime.now(datetime.UTC).
ts = datetime.datetime.utcnow().isoformat()
[2025-11-11T09:58:46.557328] Created backend instance.
[2025-11-11T09:58:46.558245] Registered vehicles V100, V200, V300.
c:\Users\sathw\transport_demo.py:31: DeprecationWarning: datetime.datetime.utcnow() is deprecated and scheduled for removal in a future vers
t datetimes in UTC: datetime.datetime.now(datetime.UTC).
ts = timestamp or datetime.datetime.utcnow().isoformat()
[2025-11-11T09:58:46.559387] Added location updates.
[2025-11-11T09:58:46.560685] Detected 0 anomalies for V100.
[2025-11-11T09:58:46.560910] Detected 0 anomalies for V200.
[2025-11-11T09:58:46.561122] Detected 0 anomalies for V300.
[2025-11-11T09:58:46.561831] Nearest vehicles to (17.505,78.505): [('V200', 0.154), ('V300', 14.595), ('V100', 15.521)]
[2025-11-11T09:58:46.562155] Mock AI summary for V200: Trip summary: 5 location points from 2025-11-11T09:58:46.559318 to 2025-11-11T09:58:4
d 120.0 km/h. Recommend checking route efficiency and safety if speeds e...
[2025-11-11T09:58:46.721519] Saved deliverables in ./outputs
Created files:
console_screenshot.png
main_fastapi_example.py
README.txt
run_log.txt
PS C:\Users\sathw> C:/Users/sathw/anaconda3/Scripts/activate
Ln 243, Col 1 (9712 selected)
Spaces: 4
UTF-8
CRLF
Python
3.13.5 (base)
Type here to search
28°C Sunny
3:54 PM
11/11/2025

```
[2025-11-11T09:58:46.557328] Created backend instance.
[2025-11-11T09:58:46.558245] Registered vehicles V100, V200, V300.
[2025-11-11T09:58:46.559318] Added location updates.
[2025-11-11T09:58:46.560685] Detected 0 anomalies for V100.
[2025-11-11T09:58:46.560910] Detected 0 anomalies for V200.
[2025-11-11T09:58:46.561122] Detected 0 anomalies for V300.
[2025-11-11T09:58:46.561831] Nearest vehicles: [('V200', 0.154), ('V300', 14.595), ('V100', 15.521)]
[2025-11-11T09:58:46.562155] Mock AI summary generated.
[2025-11-11T09:58:46.721519] Saved deliverables in ./outputs
```

THE ABOVE IMAGE IS CONSOLE_SCREENSHOT



EXPLANATION:

This project is a backend system for a transportation company. It registers vehicles, stores their location updates, finds the nearest vehicles, and uses AI-assisted tools to analyze driving behavior.

The code was tested by registering three vehicles, adding location updates, running anomaly detection, generating a trip summary, and finding the nearest vehicle. The program automatically created output files:

run_log.txt – log of all test steps

console_screenshot.png – screenshot-style output image

main_fastapi_example.py – sample API backend

README.txt – description file