ADVANCED PYTHON PROGRAMMING

LAB ASSIGNMENT 23

FASTAPI IMPLEMENTATION

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Ecommerce_API.py

```python
from fastapi import FastAPI, HTTPException, Request
from fastapi.middleware.cors import CORSMiddleware
from mangum import Mangum
import random


app = FastAPI(title="E-Commerce API", version="1.0")

# ✅ Add CORS middleware before any routes
app.add_middleware(
    CORSMiddleware,
    allow_origins=["*"],
    allow_credentials=True,
    allow_methods=["*"],
    allow_headers=["*"],
)

# --- API endpoint: E-Commerce ---
@app.post("/discount_vendor_info")
async def add_to_cart(request: Request):
    try:
        data = await request.json()
        print("🔍 Received data:", data)
```

```python
        # Expecting { "product_id": 1, "name": "Product Name", "price": 499 }
        product_id = data.get("product_id")
        name = data.get("name")
        price = data.get("price")

        if not all([product_id, name, price]):
            raise HTTPException(status_code=400, detail="Missing product
details")

        # Simulate discount and vendor
        discount = random.choice([0, 5, 10, 15, 20])
        vendor = random.choice(["TechWorld", "ShopEase", "ElectroMart",
"MegaDeals"])

        if discount > 0:
            message = f"{discount}% discount available from {vendor} for
{name}."
        else:
            message = f"No current discounts for {name}."

        return {"message": message}

    except Exception as e:
        raise HTTPException(status_code=500, detail=f"Processing failed:
{str(e)}")


# --- AWS Lambda handler ---
lambda_handler = Mangum(app)
```
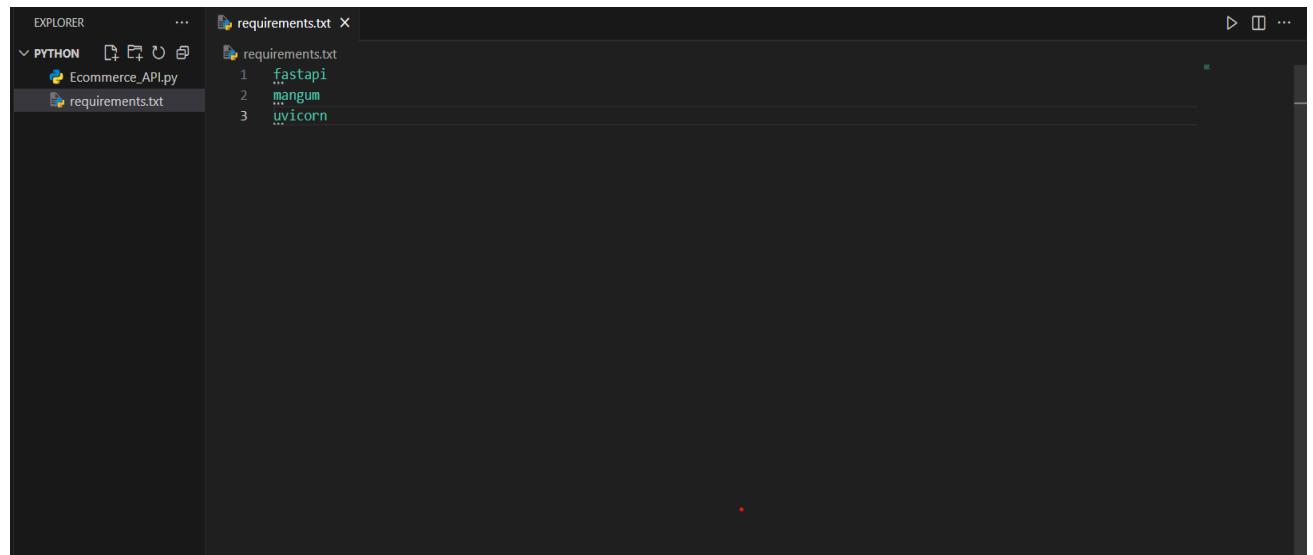
requirements.txt

```
EXPLORER                    requirements.txt ×
∨ PYTHON                    requirements.txt
   Ecommerce_API.py          1  fastapi
   requirements.txt          2  mangum
                             3  uvicorn
```

```
PROBLEMS 3    OUTPUT    DEBUG CONSOLE    TERMINAL    PORTS    AZURE                    powershell  + ∨  ⊓  ⬚  ⋯
PS D:\Downloads\python> python -m pip install -r requirements.txt
Defaulting to user installation because normal site-packages is not writeable
Collecting fastapi (from -r requirements.txt (line 2))
  Downloading fastapi-0.121.0-py3-none-any.whl.metadata (28 kB)
Collecting mangum (from -r requirements.txt (line 3))
  Downloading mangum-0.19.0-py3-none-any.whl.metadata (3.6 kB)
Collecting uvicorn (from -r requirements.txt (line 4))
  Downloading uvicorn-0.38.0-py3-none-any.whl.metadata (6.8 kB)
Collecting starlette<0.50.0,>=0.40.0 (from fastapi->-r requirements.txt (line 2))
  Downloading starlette-0.49.3-py3-none-any.whl.metadata (6.4 kB)
Requirement already satisfied: pydantic!=1.8,!=1.8.1,!=2.0.0,!=2.0.1,!=2.1.0,<3.0.0,>=1.7.4 in c:\users\anushree\appdata\roam
hon\python311\site-packages (from fastapi->-r requirements.txt (line 2)) (2.12.3)
Requirement already satisfied: typing-extensions>=4.8.0 in c:\program files\python311\lib\site-packages (from fastapi->-r req
ts.txt (line 2)) (4.14.1)
Collecting annotated-doc>=0.0.2 (from fastapi->-r requirements.txt (line 2))
  Downloading annotated_doc-0.0.3-py3-none-any.whl.metadata (6.6 kB)
Requirement already satisfied: annotated-types>=0.6.0 in c:\users\anushree\appdata\roaming\python\python311\site-packages (fr
ntic!=1.8,!=1.8.1,!=2.0.0,!=2.0.1,!=2.1.0,<3.0.0,>=1.7.4->fastapi->-r requirements.txt (line 2)) (0.7.0)
Requirement already satisfied: pydantic-core==2.41.4 in c:\users\anushree\appdata\roaming\python\python311\site-packages (fro
tic!=1.8,!=1.8.1,!=2.0.0,!=2.0.1,!=2.1.0,<3.0.0,>=1.7.4->fastapi->-r requirements.txt (line 2)) (2.41.4)
Requirement already satisfied: typing-inspection>=0.4.2 in c:\users\anushree\appdata\roaming\python\python311\site-packages (
dantic!=1.8,!=1.8.1,!=2.0.0,!=2.0.1,!=2.1.0,<3.0.0,>=1.7.4->fastapi->-r requirements.txt (line 2)) (0.4.2)
Requirement already satisfied: anyio<5,>=3.6.2 in c:\program files\python311\lib\site-packages (from starlette<0.50.0,>=0.40.
```

```
dantic!=1.8,!=1.8.1,!=2.0.0,!=2.0.1,!=2.1.0,<3.0.0,>=1.7.4->fastapi->-r requirements.txt (line 2)) (0.4.2)
Requirement already satisfied: anyio<5,>=3.6.2 in c:\program files\python311\lib\site-packages (from starlette<0.50.0,>=0.40.
api->-r requirements.txt (line 2)) (4.9.0)
Requirement already satisfied: idna>=2.8 in c:\program files\python311\lib\site-packages (from anyio<5,>=3.6.2->starlette<0.5
.40.0->fastapi->-r requirements.txt (line 2)) (3.10)
Requirement already satisfied: sniffio>=1.1 in c:\program files\python311\lib\site-packages (from anyio<5,>=3.6.2->starlette<
>=0.40.0->fastapi->-r requirements.txt (line 2)) (1.3.1)
Requirement already satisfied: click>=7.0 in c:\users\anushree\appdata\roaming\python\python311\site-packages (from uvicorn->
irements.txt (line 4)) (8.2.1)
Requirement already satisfied: h11>=0.8 in c:\program files\python311\lib\site-packages (from uvicorn->-r requirements.txt (l
 (0.16.0)
Requirement already satisfied: colorama in c:\program files\python311\lib\site-packages (from click>=7.0->uvicorn->-r require
xt (line 4)) (0.4.6)
Downloading fastapi-0.121.0-py3-none-any.whl (109 kB)
Downloading starlette-0.49.3-py3-none-any.whl (74 kB)
Downloading mangum-0.19.0-py3-none-any.whl (17 kB)
Downloading uvicorn-0.38.0-py3-none-any.whl (68 kB)
Downloading annotated_doc-0.0.3-py3-none-any.whl (5.5 kB)
  Consider adding this directory to PATH or, if you prefer to suppress this warning, use --no-warn-script-location.
Successfully installed annotated-doc-0.0.3 fastapi-0.121.0 mangum-0.19.0 starlette-0.49.3 uvicorn-0.38.0

[notice] A new release of pip is available: 22.3 -> 25.3
[notice] To update, run: python.exe -m pip install --upgrade pip
PS D:\Downloads\python> uvicorn ECommerce_API:app --reload
```

CREATION OF VIRTUAL ENVIRONMENT TO RUN UVICORN

```
PS D:\Downloads\python> python -m venv venv
PS D:\Downloads\python> venv\Scripts\activate
(venv) PS D:\Downloads\python> python -m pip install -r requirements.txt
● Collecting fastapi (from -r requirements.txt (line 2))
   Downloading fastapi-0.121.0-py3-none-any.whl (109 kB)
   ---------------------------------------- 109.2/109.2 kB 186.0 kB/s eta 0:00:00
Collecting mangum (from -r requirements.txt (line 3))
   Downloading mangum-0.19.0-py3-none-any.whl (17 kB)
Collecting uvicorn (from -r requirements.txt (line 4))
   Downloading uvicorn-0.38.0-py3-none-any.whl (68 kB)
   ---------------------------------------- 68.1/68.1 kB 148.0 kB/s eta 0:00:00
Collecting starlette<0.50.0,>=0.40.0 (from fastapi->-r requirements.txt (line 2))
   Downloading starlette-0.49.3-py3-none-any.whl (74 kB)
   ---------------------------------------- 74.3/74.3 kB 205.4 kB/s eta 0:00:00
Collecting pydantic!=1.8,!=1.8.1,!=2.0.0,!=2.0.1,!=2.1.0,<3.0.0,>=1.7.4 (from fastapi->-r requirements.txt (line 2))
   Downloading pydantic-2.12.4-py3-none-any.whl (463 kB)
   ---------------------------------------- 463.4/463.4 kB 128.3 kB/s eta 0:00:00
Collecting typing-extensions>=4.8.0 (from fastapi->-r requirements.txt (line 2))
   Downloading typing_extensions-4.15.0-py3-none-any.whl (44 kB)
   ---------------------------------------- 44.6/44.6 kB 365.7 kB/s eta 0:00:00
Collecting annotated-doc>=0.0.2 (from fastapi->-r requirements.txt (line 2))
   Downloading annotated_doc-0.0.3-py3-none-any.whl (5.5 kB)
Collecting click>=7.0 (from uvicorn->-r requirements.txt (line 4))
   Downloading click-8.3.0-py3-none-any.whl (107 kB)
```

OUTPUT:

E-Commerce API - Swagger UI

127.0.0.1:8000/docs#/default/add_to_cart_discount_vendor_info_post

E-Commerce API 1.0 OAS 3.1

/openapi.json

default

POST /discount_vendor_info Add To Cart

Parameters   Cancel

No parameters

Execute	Clear

Responses

Curl

```
curl -X 'POST' \
  'http://127.0.0.1:8000/discount_vendor_info' \
  -H 'accept: application/json' \
  -d ''
```