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Cloud Demo:

Ecommerce file

The screenshot shows a code editor interface with two tabs open: 'Ecommerce.py' and 'requirements.txt'. The 'Ecommerce.py' tab contains Python code for a FastAPI application. The code includes imports for FastAPI, HTTPException, Request, CORSMiddleware, and Mangum. It defines an app instance with title 'E-Commerce API' and version '1.0'. A CORS middleware is added before any routes. An endpoint '/discount\_vendor\_info' is defined using @app.post. An asynchronous function 'add\_to\_cart' handles requests, printing received data and extracting product\_id, name, and price. It then generates a discount and vendor randomly. If a discount is present, it calculates a message indicating the discount available from a vendor for a product. Otherwise, it says there are no current discounts for the product. Finally, it returns a message. An exception handler catches all exceptions and raises an HTTPException with status\_code 500 and a processing failed message. The code ends with an AWS Lambda handler definition using Mangum[app]. The 'requirements.txt' tab is also visible.

```
File Edit Selection View ... ← → ⌂ Q cloud

EXPLORER CLOUD
> __pycache__ > venv Ecommerce.py
requirements.txt

Ecommerce.py > ...
1 from fastapi import FastAPI, HTTPException, Request
2 from fastapi.middleware.cors import CORSMiddleware
3 from mangum import Mangum
4 import random
5
6 app = FastAPI(title="E-Commerce API", version="1.0")
7
8 # Add CORS middleware before any routes
9 app.add_middleware(
10     CORSMiddleware,
11     allow_origins=["*"],
12     allow_credentials=True,
13     allow_methods=["*"],
14     allow_headers=["*"],
15 )
16
17 # --- API endpoint: E-Commerce ---
18 @app.post("/discount_vendor_info")
19 async def add_to_cart(request: Request):
20     try:
21         data = await request.json()
22         print(" Received data:", data)
23
24         # Expecting { "product_id": 1, "name": "Product Name", "price": 499 }
25         product_id = data.get("product_id")
26         name = data.get("name")
27         price = data.get("price")
28
29         if not all([product_id, name, price]):
30             raise HTTPException(status_code=400, detail="Missing product details")
31
32         # Simulate discount and vendor
33         discount = random.choice([0, 5, 10, 15, 20])
34         vendor = random.choice(["TechWorld", "ShopEase", "ElectroMart", "MegaDeals"])
35
36         if discount > 0:
37             message = f"{discount}% discount available from {vendor} for {name}."
38         else:
39             message = f"No current discounts for {name}."
40
41         return {"message": message}
42
43     except Exception as e:
44         raise HTTPException(status_code=500, detail=f"Processing failed: {str(e)}")
45
46
47 # --- AWS Lambda handler ---
48 lambda_handler = Mangum(app)
```

Requirements file:

The screenshot shows the VS Code interface with the following details:

- File Bar:** File, Edit, Selection, View, ...
- Search Bar:** cloud
- Explorer:** Shows a folder structure under CLOUD: \_\_pycache\_\_, venv, Ecommerce.py, requirements.txt.
- Editor:** The requirements.txt file is open, displaying the following content:

```
#Core FastAPI app
fastapi
mangum
uvicore
```

## Importing required files

The screenshot shows the VS Code interface with the following details:

- File Bar:** File, Edit, Selection, View, ...
- Search Bar:** cloud
- Explorer:** Shows a folder structure under CLOUD: \_\_pycache\_\_, venv, Ecommerce.py, requirements.txt.
- Terminal:** The terminal tab is active, showing the command `py -m pip install -r requirements.txt` being run. The output shows the following:[notice] A new release of pip is available: 25.2 -> 25.3
[notice] To update, run: python.exe -m pip install --upgrade pip
ERROR: Could not open requirements file: [Errno 2] No such file or directory: 'requirements.txt'
PS C:\Users\sada1\Documents\cloud> py -m pip install -r requirements.txt
Requirement already satisfied: fastapi in c:\python\lib\site-packages (from -r requirements.txt (line 2)) (0.121.0)
Requirement already satisfied: mangum in c:\python\lib\site-packages (from -r requirements.txt (line 3)) (0.19.0)
Collecting uvicore (from -r requirements.txt (line 4))
 Downloading uvicore-0.3.17-py3-none-any.whl.metadata (7.1 kB)
Requirement already satisfied: starlette<0.50.0,>=0.40.0 in c:\python\lib\site-packages (from fastapi->-r requirements.txt (line 2)) (0.49.3)
Requirement already satisfied: pydantic!=1.8,<1.8.1,<=2.0.0,<=2.0.1,<3.0.0,>=1.7.4 in c:\python\lib\site-packages (from fastapi->-r requirements.txt (line 2)) (2.12.4)
Requirement already satisfied: typing-extensions>=4.8.0 in c:\python\lib\site-packages (from fastapi->-r requirements.txt (line 2)) (4.15.0)
Requirement already satisfied: annotated-doc>=0.0.2 in c:\python\lib\site-packages (from fastapi->-r requirements.txt (line 2)) (0.0.3)
Requirement already satisfied: annotated-types>=0.6.0 in c:\python\lib\site-packages (from pydantic!=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==2.41.5 in c:\python\lib\site-packages (from pydantic!=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)) (2.41.5)
Requirement already satisfied: typing-inspection>=0.4.2 in c:\python\lib\site-packages (from pydantic!=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:\python\lib\site-packages (from starlette<0.50.0,>=0.40.0->fastapi->-r requirements.txt (line 2)) (4.11.0)
Requirement already satisfied: exceptiongroup>=1.0.2 in c:\python\lib\site-packages (from anyio<5,>=3.6.2->starlette<0.50.0,>=0.40.0->

EXPLORER    ...

CLOUD  
\_pycache\_  
venv  
Ecommerce.py  
requirements.txt

Ecommerce.py requirements.txt

```
requirements.txt
1 #Core FastAPI app
2 fastapi
3 mangum
4 uvicore
```

PROBLEMS    OUTPUT    DEBUG CONSOLE    TERMINAL    PORTS

-1.20.1

```
[notice] A new release of pip is available: 25.2 -> 25.3
[notice] To update, run: python.exe -m pip install --upgrade pip
PS C:\Users\sada1\Documents\cloud> uvicorn Ecommerce:app --reload
    Successfully uninstalled aiohttp-3.11.18 aiosignal-1.4.0 aiohttp-4.11.0
Successfully installed Mako-1.3.10 PyMySQL-1.1.2 Pygments-2.19.2 aiohttp-3.11.18 aiosignal-1.4.0 aiohttp-4.11.0 ar-
gon2-cffi-23.1.0 argon2-cffi-bindings-25.1.0 attrs-25.3.0 backports-datetime-fromisoformat-2.0.3 certifi-2025.8.3
cffi-2.0.0 charset-normalizer-3.4.3 colored-2.2.5 colorful-0.5.7 coverage-7.10.7 cryptography-44.0.3 environs-14.1.1 frozenlist-1.7.0
greenlet-3.2.4 httpcore-1.0.9 httpx-0.26.0 idna-3.10 iniconfig-2.1.0 jinja2-3.1.5 marshmallow-4.0.1 merge-args-0.1.5 multidict-6.6.4 p
luggy-1.6.0 prettyprinter-0.18.0 propcache-0.3.2 pycparser-2.23 pydantic-1.10.24 python-dotenv-1.1.1 urlib3-2.5.0 uvicore-0.3.17 yarl
-1.20.1

[notice] A new release of pip is available: 25.2 -> 25.3
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PS C:\Users\sada1\Documents\cloud> uvicorn Ecommerce:app --reload
dings-25.1.0 async-timeout-5.0.1 attrs-25.3.0 backports-datetime-fromisoformat-2.0.3 certifi-2025.8.3 cffi-2.0.0 charset-normalizer-3.
4.3 colored-2.2.5 colorful-0.5.7 coverage-7.10.7 cryptography-44.0.3 environs-14.1.1 frozenlist-1.7.0 greenlet-3.2.4 httpcore-1.0.9 ht
tpx-2.6.0 idna-3.10 iniconfig-2.1.0 jinja2-3.1.5 marshmallow-4.0.1 merge-args-0.1.5 multidict-6.6.4 pluggy-1.6.0 prettyprinter-0.18.0
propcache-0.3.2 pycparser-2.23 pydantic-1.10.24 python-dotenv-1.1.1 urlib3-2.5.0 uvicore-0.3.17 yarl-1.20.1

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PS C:\Users\sada1\Documents\cloud> uvicorn Ecommerce:app --reload
coverage-7.10.7 cryptography-44.0.3 environs-14.1.1 frozenlist-1.7.0 greenlet-3.2.4 httpcore-1.0.9 httpx-0.26.0 idna-3.10 iniconfig-2
.1.0 jinja2-3.1.5 marshmallow-4.0.1 merge-args-0.1.5 multidict-6.6.4 pluggy-1.6.0 prettyprinter-0.18.0 propcache-0.3.2 pycparser-2.23
pydantic-1.10.24 python-dotenv-1.1.1 urlib3-2.5.0 uvicore-0.3.17 yarl-1.20.1
```

OUTLINE    TIMELINE

PROBLEMS    OUTPUT    DEBUG CONSOLE    TERMINAL    PORTS

uvicorn

```
INFO: Will watch for changes in these directories: ['C:\\Users\\sada1\\Documents\\cloud']
[notice] To update, run: python.exe -m pip install --upgrade pip
PS C:\\Users\\sada1\\Documents\\cloud> uvicorn Ecommerce:app --reload
INFO: Will watch for changes in these directories: ['C:\\Users\\sada1\\Documents\\cloud']
INFO: Uvicorn running on http://127.0.0.1:8000 (Press CTRL+C to quit)
PS C:\\Users\\sada1\\Documents\\cloud> uvicorn Ecommerce:app --reload
INFO: Will watch for changes in these directories: ['C:\\Users\\sada1\\Documents\\cloud']
INFO: Uvicorn running on http://127.0.0.1:8000 (Press CTRL+C to quit)
INFO: Uvicorn running on http://127.0.0.1:8000 (Press CTRL+C to quit)
INFO: Started reloader process [2880] using StatReload
INFO: Started server process [4352]
INFO: Started reloader process [2880] using StatReload
INFO: Started server process [4352]
INFO: Waiting for application startup.
INFO: Started server process [4352]
INFO: Waiting for application startup.
INFO: Waiting for application startup.
INFO: Application startup complete.
INFO: Application startup complete.
INFO: 127.0.0.1:54619 - "GET / HTTP/1.1" 404 Not Found
INFO: 127.0.0.1:54619 - "GET /favicon.ico HTTP/1.1" 404 Not Found
INFO: 127.0.0.1:61230 - "GET /doxc HTTP/1.1" 404 Not Found
INFO: 127.0.0.1:53951 - "GET / HTTP/1.1" 404 Not Found
INFO: 127.0.0.1:58367 - "GET /doxc HTTP/1.1" 404 Not Found
INFO: 127.0.0.1:55954 - "GET / HTTP/1.1" 404 Not Found
INFO: 127.0.0.1:55954 - "GET / HTTP/1.1" 404 Not Found
```

The screenshot shows a web browser window with two tabs open. The top tab displays a JSON response from a local server at 127.0.0.1:8000. The response is:

```
{ "detail": "Not Found" }
```

The bottom tab is an E-Commerce API - Swagger UI interface. It shows a POST method for the endpoint /discount\_vendor\_info. The method details are as follows:

- POST** /discount\_vendor\_info Add To Cart
- Parameters**: No parameters
- Responses**:
  - Code**: 200 **Description**: Successful Response
    - Media type**: application/json (selected)
    - Controls Accept header.
    - Example Value**: string

The Swagger UI interface includes a "Try it out" button and a "Links" section which is currently empty. The browser's address bar shows the URL 127.0.0.1:8000/docs#/default/add\_to\_cart\_discount\_vendor\_info\_post.

Creating the Docker file and building Docker image

The screenshot shows the Visual Studio Code interface. In the Explorer pane on the left, there is a folder named 'CLOUD' containing files: '\_pycache\_', 'venv', 'Dockerfile', 'Ecommerce.py', and 'requirements.txt'. The 'Dockerfile' file is selected and highlighted in the Explorer. In the Editor pane at the top right, the 'Dockerfile' content is displayed:

```
FROM public.ecr.aws/lambda/python:3.11
WORKDIR /var/task
# Install system tools
RUN yum install -y gcc make rust cargo && \
    python3.11 -m pip install --upgrade pip setuptools wheel
# Copy requirements and install them directly
COPY requirements.txt .
RUN python3.11 -m pip install --no-cache-dir -r requirements.txt
# Copy application code
COPY . .
# Lambda entrypoint
CMD ["Ecommerce.lambda_handler"]
```

Below the Editor pane, the bottom navigation bar includes tabs for PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL, and PORTS. The TERMINAL tab is active, showing the following command-line session:

```
Usage: docker buildx build [OPTION]Invoke-RestMethod -Uri "http://127.0.0.1:8000/discount_vendor_info" ^
>> -Method POST ^
>> -Headers @{
  "Content-Type" = "application/json"
} ^
>> -Body '{
  "product_id": 1,
  "name": "Beige Living Room Sofa",
  "price": 499
}'
```

message  
-----  
No current discounts for Beige Living Room Sofa.

```
PS C:\Users\sada1\Documents\cloud> docker build -t ecommerce_api .
[+] Building 468.6s (11/11) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 465B
```

docker:d

Ln 17, Col 13 Spaces: 4 UTF-8