ADVANCE PYTHON PROGRAMMING

LAB ASSIGNMENT- 23
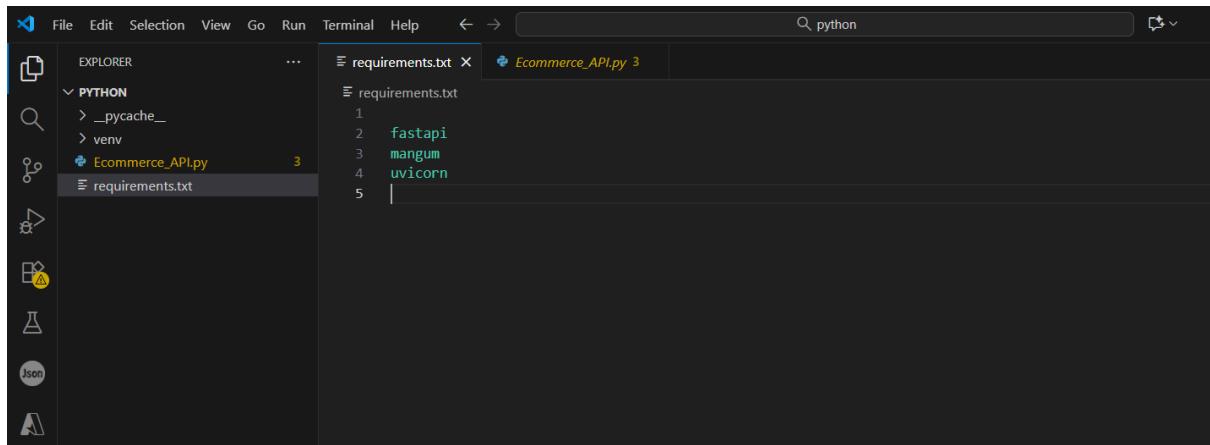
FASTAPI – CLOUD INTEGRATION

G REENA SRI

22MID0009

```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)

        # 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}."
```

```python
async def add_to_cart(request: Request):
            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)
```

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.
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
```

```
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
```

```
[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
uvicorn : The term 'uvicorn' is not recognized as the name of a cmdlet, function, script file, or operable program. Check the

uvicorn : The term 'uvicorn' is not recognized as the name of a cmdlet, function, script file, or operable program. Check the


spelling of the name, or if a path was included, verify that the path is correct and try again.
At line:1 char:1
+ uvicorn ECommerce_API:app --reload
At line:1 char:1
+ uvicorn ECommerce_API:app --reload
+ uvicorn ECommerce_API:app --reload
+ ~~~~~~~
+ ~~~~~~~
    + CategoryInfo          : ObjectNotFound: (uvicorn:String) [], CommandNotFoundException
    + FullyQualifiedErrorId : CommandNotFoundException

PS D:\Downloads\python> |
```

Error: Uvicorn is not recognized, therefore virtual environment is created.

```
PS D:\Downloads\python> python -m pip install -r requirements.txt

[notice] A new release of pip is available: 22.3 -> 25.3
[notice] To update, run: python.exe -m pip install --upgrade pip
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uvicorn : The term 'uvicorn' is not recognized as the name of a cmdlet, function, script file, or operable program. Check
the spelling of the name, or if a path was included, verify that the path is correct and try again.
At line:1 char:1
+ uvicorn ECommerce_API:app --reload
+ ~~~~~~~
    + CategoryInfo          : ObjectNotFound: (uvicorn:String) [], CommandNotFoundException
    + FullyQualifiedErrorId : CommandNotFoundException

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))
```

```
+ uvicorn ECommerce_API:app --reload
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)
```
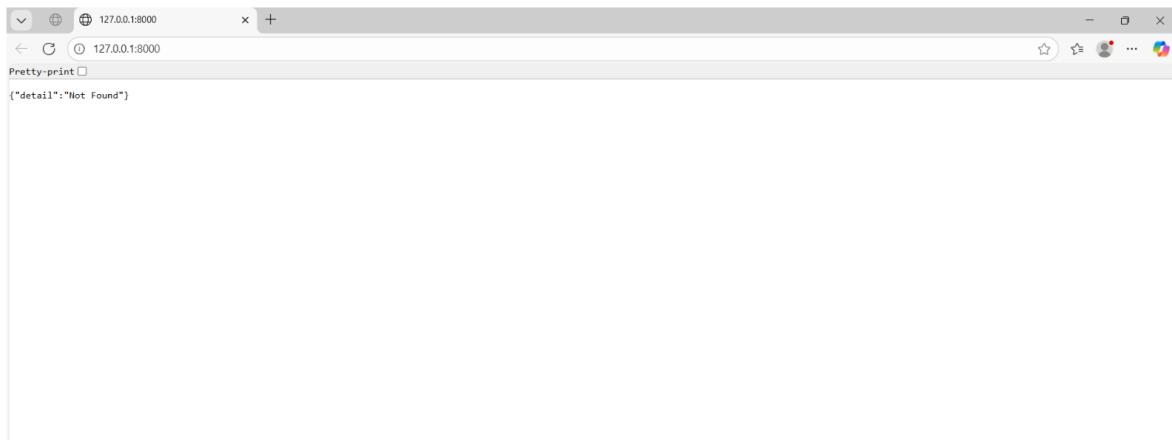
```
PROBLEMS 3   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS   AZURE                                    uvicorn  + ∨  ⊓ 🗑  ⋯

Collecting fastapi (from -r requirements.txt (line 2))
   ───────────────────────────────── 107.3/107.3 kB 159.4 kB/s eta 0:00:00
Collecting h11>=0.8 (from uvicorn->-r requirements.txt (line 4))
   Downloading h11-0.16.0-py3-none-any.whl (37 kB)
Collecting colorama (from click>=7.0->uvicorn->-r requirements.txt (line 4))
   Downloading colorama-0.4.6-py2.py3-none-any.whl (25 kB)
Collecting annotated-types>=0.6.0 (from pydantic!=1.8,!=1.8.1,!=2.0.0,!=2.0.1,!=2.1.0,<3.0.0,>=1.7.4->fastapi->-r requirement
s.txt (line 2))
   Downloading annotated_types-0.7.0-py3-none-any.whl (13 kB)
Collecting pydantic-core==2.41.5 (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))
   Downloading pydantic_core-2.41.5-cp311-cp311-win_amd64.whl (2.0 MB)
Collecting typing-inspection>=0.4.2 (from pydantic!=1.8,!=1.8.1,!=2.0.0,!=2.0.1,!=2.1.0,<3.0.0,>=1.7.4->fastapi->-r requireme
nts.txt (line 2))
   Downloading typing_inspection-0.4.2-py3-none-any.whl (14 kB)
Collecting anyio<5,>=3.6.2 (from starlette<0.50.0,>=0.40.0->fastapi->-r requirements.txt (line 2))
   Downloading anyio-4.11.0-py3-none-any.whl (109 kB)
Collecting idna>=2.8 (from anyio<5,>=3.6.2->starlette<0.50.0,>=0.40.0->fastapi->-r requirements.txt (line 2))
   Downloading idna-3.11-py3-none-any.whl (71 kB)
   ───────────────────────────────── 71.0/71.0 kB 434.1 kB/s eta 0:00:00
Collecting sniffio>=1.1 (from anyio<5,>=3.6.2->starlette<0.50.0,>=0.40.0->fastapi->-r requirements.txt (line 2))
   Downloading sniffio-1.3.1-py3-none-any.whl (10 kB)
Installing collected packages: typing-extensions, sniffio, idna, h11, colorama, annotated-types, annotated-doc, typing-inspec
tion, pydantic-core, mangum, click, anyio, uvicorn, starlette, pydantic, fastapi
Successfully installed annotated-doc-0.0.3 annotated-types-0.7.0 anyio-4.11.0 click-8.3.0 colorama-0.4.6 fastapi-0.121.0 h11-
```

```
PROBLEMS 3   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS   AZURE                                    uvicorn  + ∨  ⊓ 🗑  ⋯  [

Collecting fastapi (from -r requirements.txt (line 2))

[notice] A new release of pip is available: 23.1.2 -> 25.3
[notice] To update, run: python.exe -m pip install --upgrade pip
(venv) PS D:\Downloads\python> uvicorn ECommerce_API:app --reload
INFO:      Will watch for changes in these directories: ['D:\\Downloads\\python']
INFO:      Uvicorn running on http://127.0.0.1:8000 (Press CTRL+C to quit)
INFO:      Started reloader process [5128] using StatReload
ERROR:     Error loading ASGI app. Could not import module "ECommerce_API".
ERROR:     Error loading ASGI app. Could not import module "ECommerce_API".
INFO:      Stopping reloader process [5128]
(venv) PS D:\Downloads\python> uvicorn Ecommerce_API:app --reload
INFO:      Will watch for changes in these directories: ['D:\\Downloads\\python']
INFO:      Uvicorn running on http://127.0.0.1:8000 (Press CTRL+C to quit)
INFO:      Started reloader process [14824] using StatReload
INFO:      Started server process [1252]
INFO:      Waiting for application startup.
INFO:      Application startup complete.
INFO:      127.0.0.1:3826 - "GET / HTTP/1.1" 404 Not Found
INFO:      Application startup complete.
INFO:      127.0.0.1:3826 - "GET / HTTP/1.1" 404 Not Found
INFO:      127.0.0.1:3826 - "GET / HTTP/1.1" 404 Not Found
INFO:      127.0.0.1:3826 - "GET /favicon.ico HTTP/1.1" 404 Not Found
INFO:      127.0.0.1:3934 - "GET / HTTP/1.1" 404 Not Found
INFO:      127.0.0.1:3934 - "GET /favicon.ico HTTP/1.1" 404 Not Found
```

```
INFO:      Waiting for application startup.
INFO:      Application startup complete.
INFO:      127.0.0.1:3826 - "GET / HTTP/1.1" 404 Not Found
INFO:      Application startup complete.
INFO:      127.0.0.1:3826 - "GET / HTTP/1.1" 404 Not Found
INFO:      127.0.0.1:3826 - "GET / HTTP/1.1" 404 Not Found
INFO:      127.0.0.1:3826 - "GET /favicon.ico HTTP/1.1" 404 Not Found
INFO:      127.0.0.1:3934 - "GET / HTTP/1.1" 404 Not Found
INFO:      127.0.0.1:3934 - "GET /favicon.ico HTTP/1.1" 404 Not Found
INFO:      127.0.0.1:3934 - "GET / HTTP/1.1" 404 Not Found
INFO:      127.0.0.1:3934 - "GET /favicon.ico HTTP/1.1" 404 Not Found
INFO:      127.0.0.1:3934 - "GET /favicon.ico HTTP/1.1" 404 Not Found
INFO:      127.0.0.1:3956 - "GET / HTTP/1.1" 404 Not Found
INFO:      127.0.0.1:3956 - "GET / HTTP/1.1" 404 Not Found
INFO:      127.0.0.1:4031 - "GET /docs HTTP/1.1" 200 OK
INFO:      127.0.0.1:4062 - "GET /openapi.json HTTP/1.1" 200 OK
INFO:      127.0.0.1:4078 - "POST /discount_vendor_info HTTP/1.1" 500 Internal Server Error
```

127.0.0.1.8000/docs has to be typed to get the website

Re-running the commands

```
 Requirement already satisfied: fastapi in d:\downloads\python\venv\lib\site-packages (from -r requirements.txt (line 2)) (0.1

[notice] A new release of pip is available: 23.1.2 -> 25.3
[notice] To update, run: python.exe -m pip install --upgrade pip
(venv) PS D:\Downloads\python> uvicorn ECommerce_API:app --reload
(venv) PS D:\Downloads\python> uvicorn ECommerce_API:app --reload
INFO:     Will watch for changes in these directories: ['D:\\Downloads\\python']
INFO:     Uvicorn running on http://127.0.0.1:8000 (Press CTRL+C to quit)
INFO:     Started reloader process [11572] using StatReload
ERROR:    Error loading ASGI app. Could not import module "ECommerce_API".
INFO:     Stopping reloader process [11572]
ERROR:    Error loading ASGI app. Could not import module "ECommerce_API".
INFO:     Stopping reloader process [11572]
INFO:     Stopping reloader process [11572]
(venv) PS D:\Downloads\python> uvicorn Ecommerce_API:app --reload
INFO:     Will watch for changes in these directories: ['D:\\Downloads\\python']
INFO:     Uvicorn running on http://127.0.0.1:8000 (Press CTRL+C to quit)
INFO:     Will watch for changes in these directories: ['D:\\Downloads\\python']
INFO:     Uvicorn running on http://127.0.0.1:8000 (Press CTRL+C to quit)
INFO:     Started reloader process [4768] using StatReload
INFO:     Started reloader process [4768] using StatReload
INFO:     Started server process [14344]
INFO:     Waiting for application startup.
INFO:     Application startup complete.
```

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 ''
```

127.0.0.1:8000/docs#/default/add_to_cart_discount_vendor_info_post

Request URL

```
http://127.0.0.1:8000/discount_vendor_info
```

Server response

Code	Details
500 Undocumented	Error: Internal Server Error

Response body

```
{
  "detail": "Processing failed: Expecting value: line 1 column 1 (char 0)"
}
```

Response headers

```
access-control-allow-credentials: true
access-control-allow-origin: *
content-length: 73
content-type: application/json
date: Fri,07 Nov 2025 05:39:09 GMT
server: uvicorn
```

Responses

Code	Description	Links
200	Successful Response	No links

Media type

application/json

Controls Accept header.
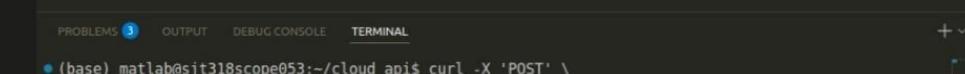
Example Value | Schema

```
"string"
```

PROBLEMS 3   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS   AZURE   powershell

```
PS D:\Downloads\python> Invoke-RestMethod -Uri "http://127.0.0.1:8080/discount&_vendor_info" `
>> -Method POST `
>> -Headers @{ "Content-Type" = "application/json" } `
>> -Body '{"product_id": 1, "name": "Beige Living Room Sofa", "price": 499}'
Invoke-RestMethod : Unable to connect to the remote server
At line:1 char:1
+ Invoke-RestMethod -Uri "http://127.0.0.1:8080/discount&_vendor_info"  ...
+ ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
    + CategoryInfo        ^C              ed: (:) [Invoke-RestMethod], WebException
PS D:\Downloads\python> curl -X 'POST' \         on,Microsoft.PowerShell.Commands.InvokeRestMethodCommand
>>   'http://127.0.0.1:8000/discount_vendor_info' \
>>   -H 'accept: application/json' \
>>   -d '{ "product_id": 1, "name": "Product Name", "price": 499 }'
At line:2 char:48
+   'http://127.0.0.1:8000/discount_vendor_info' \
+                                               ~
Unexpected token '\' in expression or statement.
    + CategoryInfo          : ParserError: (:) [], ParentContainsErrorRecordException
    + FullyQualifiedErrorId : UnexpectedToken

PS D:\Downloads\python> []
```

Error: Docker not supported;

Expected output:

PROBLEMS 3   OUTPUT   DEBUG CONSOLE   TERMINAL

```
(base) matlab@sjt318scope053:~/cloud_api$ curl -X 'POST' \
  'http://127.0.0.1:8000/discount_vendor_info' \
  -H 'accept: application/json' \
  -d '{ "product_id": 1, "name": "Product Name", "price": 499 }'
{"message":"10% discount available from ElectroMart for Product Name."}(base) matlab@sjt318scope053:~
/cloud_api$ []
```