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(NOTE : you need to install these before trying this out)

pip install fastapi

pip install "uvicorn[standard]"

pip install fastapi-pagination[fastapi]

Run it in cmd with command

uvicorn file_name:app_name --reload

to view the API docs just go to the

URL/docs

1. API to List all available products in the system. You can create some 10-20 dummy products like TV, laptop, etc for reference. Each product should have these attributes -
 - a. Product name
 - b. Product price
 - c. Product available quantity

CODE:

```
from fastapi import FastAPI
```

```
app1 = FastAPI()
```

```
product = {
    1:{"name":"laptop","price":30000,"available_quantity":200},
    2:{"name":"computer","price":40000,"available_quantity":150},
    3:{"name":"earpods","price":7000,"available_quantity":300},
    4:{"name":"headphones","price":3000,"available_quantity":120},
    5:{"name":"type c charger","price":1250,"available_quantity":700},
    6:{"name":"mobile","price":20000,"available_quantity":1000},
    7:{"name":"ipod","price":60000,"available_quantity":190},
    8:{"name":"smartwatch","price":5000,"available_quantity":250},
    9:{"name":"Bluetooth speaker","price":2500,"available_quantity":400},
    10:{"name":"external hard drive","price":6000,"available_quantity":180},
    11:{"name":"printer","price":8000,"available_quantity":90},
    12:{"name":"wireless mouse","price":1000,"available_quantity":600},
    13:{"name":"keyboard","price":1500,"available_quantity":450},
    14:{"name":"portable SSD","price":7000,"available_quantity":350},
    15:{"name":"gaming console","price":25000,"available_quantity":80},
    16:{"name":"graphics card","price":15000,"available_quantity":200},
    17:{"name":"smartphone tripod","price":500,"available_quantity":800},
    18:{"name":"USB flash drive","price":500,"available_quantity":1000},
    19:{"name":"webcam","price":3000,"available_quantity":250},
```

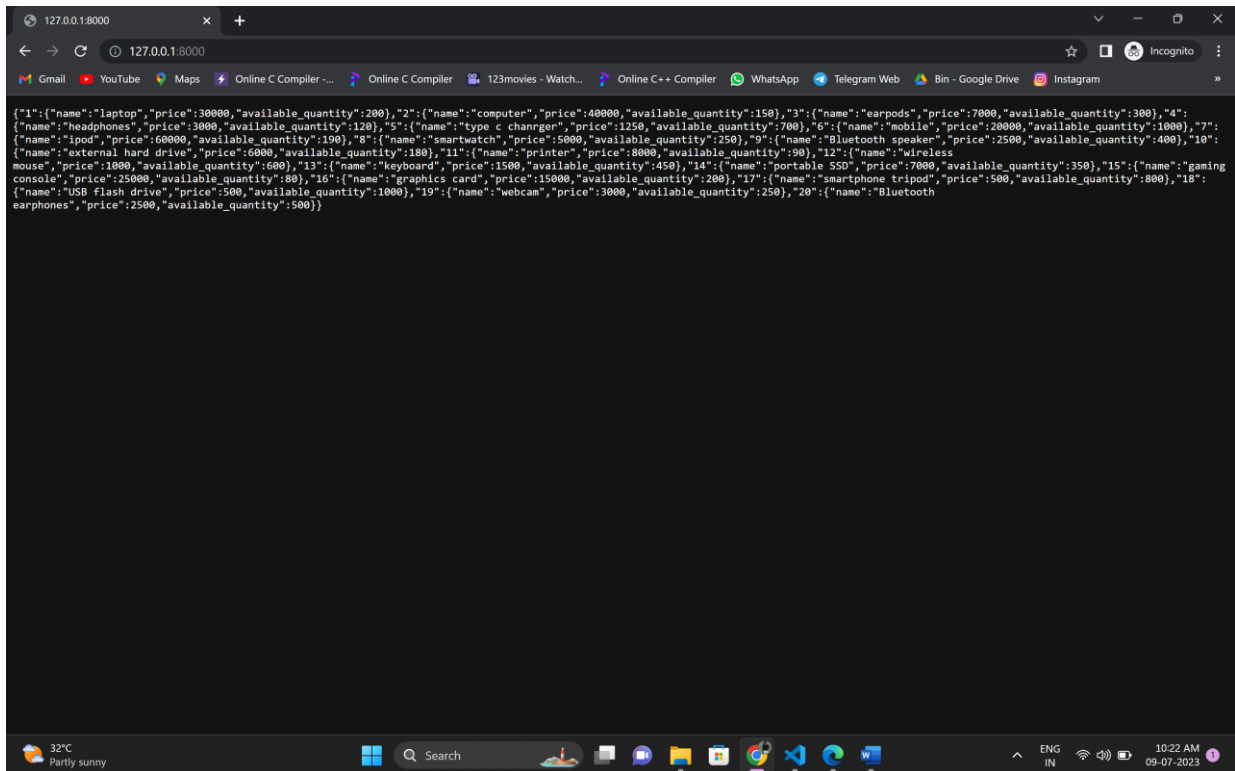
```

    20:{"name":"Bluetooth earphones","price":2500,"available_quantity":500}
}
@app1.get("/")
def send():
    return product

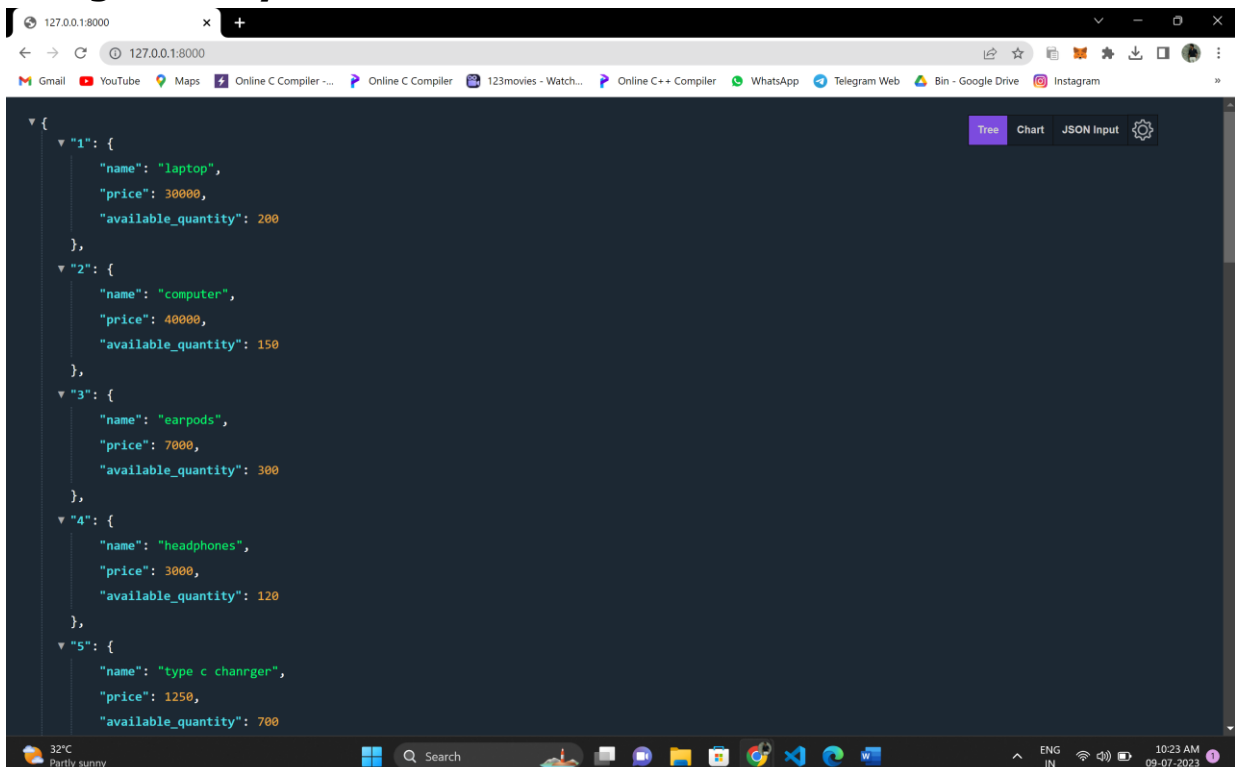
```

Run it by command :

uvicorn files_name:app1 --reload



Using beautify JSON viewer



2. API to Create a new order. Each order should have these properties -
 - a. Timestamp
 - b. Items – list of items bought in the Order. Each record in this array would have these properties -
 - i. productId
 - ii. boughtQuantity
 - c. Total amount
 - d. User Address – nested object having these properties -
 - i. City
 - ii. Country
 - iii. Zip Code

CODE:

```
from fastapi import FastAPI, Body
from pydantic import BaseModel
from datetime import datetime
```

```
app2 = FastAPI()
```

```
orders = []
```

```
class Item(BaseModel):
    productId: str
    boughtQuantity: int
```

```
class UserAddress(BaseModel):
    city: str
    country: str
    zipCode: str
```

```
class Order(BaseModel):
    orderID : str
    timestamp: datetime
    items: list[Item]
    totalAmount: float
    userAddress: UserAddress
```

```
@app2.post("/orders")
def create_order(
    orderid : str,
    items: list[Item] ,
    totalAmount: float ,
    city: str ,
    country: str ,
    zipCode: str
):
    order = Order(
        orderID=orderid,
        timestamp=datetime.now(),
```

```

        items=items,
        totalAmount=totalAmount,
        userAddress=UserAddress(city=city, country=country, zipCode=zipCode)
    )

    orders.append(order)
    return {"message": "Order created successfully"}

@app2.get("/get-orders-details")
def get_orders(order_id : str):
    for temp_order in orders:
        if temp_order.orderID == order_id:
            return temp_order

```

(NOTE : uvicorn file name:app2 --reload)

The screenshot displays the Swagger UI for a FastAPI application. The main section is titled "default" and shows a POST endpoint at "/orders" with a "Create Order" button. Below this, the "Parameters" section lists five query parameters: "orderid" (string, required, value: 100), "totalAmount" (number, required, value: 3000), "city" (string, required, value: chennai), "country" (string, required, value: india), and "zipCode" (string, required, value: 600011). The "Request body" section is also present, showing a JSON object: {"productId": "ifers", "boughtQuantity": 2}. The interface includes a "Cancel" button and a "Reset" button. The bottom of the screen shows a Windows taskbar with the date and time as 02:12 PM on 09-07-2023.

Extra Data Types - FastAPI x Introducing ChatGPT x New chat x FastAPI - Swagger UI x +

127.0.0.1:8000/docs#/default/get_orders_get_orders_details_get

Gmail YouTube Maps Online C Compiler -... Online C Compiler 123movies - Watch... Online C++ Compiler WhatsApp Telegram Web Bin - Google Drive Instagram

zipCode * required
string
(query)

600011

Request body required
application/json

```
[
  {
    "productId": "ifers",
    "boughtQuantity": 2
  },
  {
    "productId": "sd",
    "boughtQuantity": 4
  },
  {
    "productId": "if243s",
    "boughtQuantity": 1
  }
]
```

Execute Clear

Responses

Curl

```
curl -X 'POST' \
  'http://127.0.0.1:8000/orders?order_id=100&totalAmount=3000&city=chennai&country=india&zipCode=600011' \
  -H 'accept: application/json' \
  -H 'Content-type: application/json' \
```

36°C Mostly sunny 02:12 PM 09-07-2023

Extra Data Types - FastAPI x Introducing ChatGPT x New chat x FastAPI - Swagger UI x +

127.0.0.1:8000/docs#/default/get_orders_get_orders_details_get

Gmail YouTube Maps Online C Compiler -... Online C Compiler 123movies - Watch... Online C++ Compiler WhatsApp Telegram Web Bin - Google Drive Instagram

```
{
  "loc": [
    "string",
    0
  ],
  "msg": "string",
  "type": "string"
}
```

GET /get-orders-details Get Orders

Parameters

Cancel

Name Description

order_id * required
string
(query)

100

Execute Clear

Responses

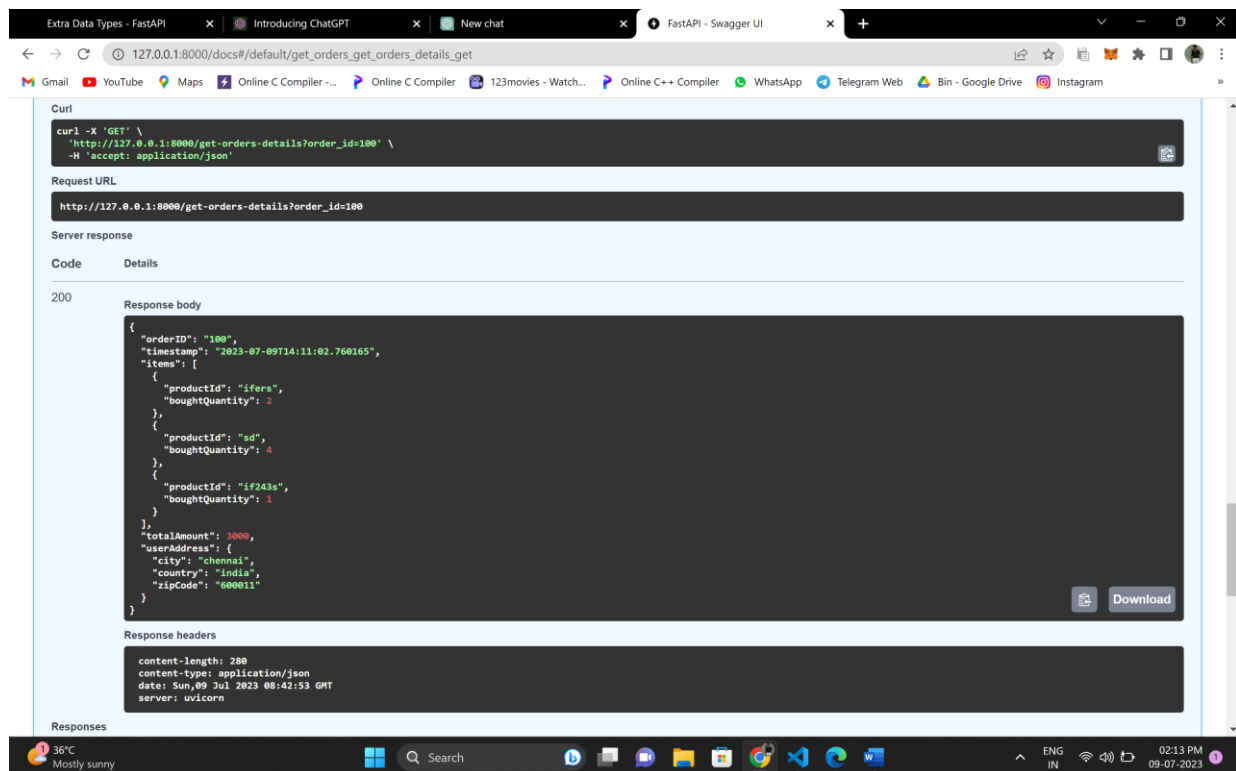
Curl

```
curl -X 'GET' \
  'http://127.0.0.1:8000/get-orders-details?order_id=100' \
  -H 'accept: application/json'
```

Request URL

http://127.0.0.1:8000/get-orders-details?order_id=100

36°C Mostly sunny 02:12 PM 09-07-2023



3. API to fetch all orders from the system. Implement pagination using limit and offset.

(note : for this api you need to additional install pagination
`pip install fastapi-pagination[fastapi]`)

CODE:

```
from typing import List
from fastapi import FastAPI
from pydantic import BaseModel
from fastapi_pagination import LimitOffsetPage, add_pagination, paginate
from datetime import datetime
```

```
app3 = FastAPI()
add_pagination(app3)
```

```
class Item(BaseModel):
    productID: str
    boughtQuantity: int
```

```
class UserAddress(BaseModel):
    city: str
    country: str
    zipCode: str
```

```
class Order(BaseModel):
    orderID: str
    timestamp: datetime = None
    items: List[Item]
```

```
totalAmount: float
userAddress: UserAddress

class Config:
    arbitrary_types_allowed = True

orders = [
    Order(
        orderID="ORD12345",
        timestamp=datetime.now(),
        items=[Item(productID="P12345", boughtQuantity=1)],
        totalAmount=10.0,
        userAddress=UserAddress(city="New York", country="United States",
zipCode="12345")
    ),
    Order(
        orderID="ORD23456",
        timestamp=datetime.now(),
        items=[Item(productID="P23456", boughtQuantity=2)],
        totalAmount=20.0,
        userAddress=UserAddress(city="London", country="United Kingdom",
zipCode="12345")
    ),
    Order(
        orderID="ORD34567",
        timestamp=datetime.now(),
        items=[Item(productID="P34567", boughtQuantity=3)],
        totalAmount=30.0,
        userAddress=UserAddress(city="Paris", country="France",
zipCode="12345")
    ),
    Order(
        orderID="ORD45678",
        timestamp=datetime.now(),
        items=[Item(productID="P45678", boughtQuantity=4)],
        totalAmount=40.0,
        userAddress=UserAddress(city="Tokyo", country="Japan", zipCode="12345")
    ),
    Order(
        orderID="ORD56789",
        timestamp=datetime.now(),
        items=[Item(productID="P56789", boughtQuantity=5)],
        totalAmount=50.0,
        userAddress=UserAddress(city="Sydney", country="Australia",
zipCode="12345")
    ),
    Order(
        orderID="ORD67890",
        timestamp=datetime.now(),
        items=[Item(productID="P67890", boughtQuantity=6)],
        totalAmount=60.0,
        userAddress=UserAddress(city="Berlin", country="Germany",
zipCode="12345")
    )
]
```

```

    ),
    Order(
        orderID="ORD78901",
        timestamp=datetime.now(),
        items=[Item(productID="P78901", boughtQuantity=7)],
        totalAmount=70.0,
        userAddress=UserAddress(city="Toronto", country="Canada",
zipCode="12345")
    ),
    Order(
        orderID="ORD89012",
        timestamp=datetime.now(),
        items=[Item(productID="P89012", boughtQuantity=8)],
        totalAmount=80.0,
        userAddress=UserAddress(city="Rome", country="Italy", zipCode="12345")
    ),
    Order(
        orderID="ORD90123",
        timestamp=datetime.now(),
        items=[Item(productID="P90123", boughtQuantity=9)],
        totalAmount=90.0,
        userAddress=UserAddress(city="Barcelona", country="Spain",
zipCode="12345")
    ),
    Order(
        orderID="ORD01234",
        timestamp=datetime.now(),
        items=[Item(productID="P01234", boughtQuantity=10)],
        totalAmount=100.0,
        userAddress=UserAddress(city="New Delhi", country="India",
zipCode="12345")
    ),
    Order(
        orderID="ORD12345",
        timestamp=datetime.now(),
        items=[Item(productID="P12345", boughtQuantity=1)],
        totalAmount=10.0,
        userAddress=UserAddress(city="New York", country="United States",
zipCode="12345")
    ),
    Order(
        orderID="ORD23456",
        timestamp=datetime.now(),
        items=[Item(productID="P23456", boughtQuantity=2)],
        totalAmount=20.0,
        userAddress=UserAddress(city="London", country="United Kingdom",
zipCode="12345")
    ),
    Order(
        orderID="ORD34567",
        timestamp=datetime.now(),
        items=[Item(productID="P34567", boughtQuantity=3)],
        totalAmount=30.0,

```



```

        userAddress=UserAddress(city="Paris", country="France",
zipCode="12345")
    ),
    Order(
        orderID="ORD45678",
        timestamp=datetime.now(),
        items=[Item(productId="P45678", boughtQuantity=4)],
        totalAmount=40.0,
        userAddress=UserAddress(city="Tokyo", country="Japan", zipCode="12345")
    ),
    Order(
        orderID="ORD56789",
        timestamp=datetime.now(),
        items=[Item(productId="P56789", boughtQuantity=5)],
        totalAmount=50.0,
        userAddress=UserAddress(city="Sydney", country="Australia",
zipCode="12345")
    ),
    Order(
        orderID="ORD67890",
        timestamp=datetime.now(),
        items=[Item(productId="P67890", boughtQuantity=6)],
        totalAmount=60.0,
        userAddress=UserAddress(city="Berlin", country="Germany",
zipCode="12345")
    )
]

```

```

@app3.post("/orders")
def create_order(
    orderid: str,
    items: List[Item],
    totalAmount: float,
    city: str,
    country: str,
    zipCode: str
):
    order = Order(
        orderID=orderid,
        timestamp=datetime.now(),
        items=items,
        totalAmount=totalAmount,
        userAddress=UserAddress(city=city, country=country, zipCode=zipCode)
    )

    orders.append(order)
    return {"message": "Order created successfully"}

```

```

@app3.get("/get-orders-details")
def get_orders(order_id: str):
    for temp_order in orders:
        if temp_order.orderID == order_id:
            return temp_order

```

```
@app3.get("/users")
def get_users() -> LimitOffsetPage[Order]:
    return paginate(orders)
```

uvicorn file_name:app3 -reload

SAMPLE 1:

The screenshot shows a web browser window with the FastAPI documentation for the `/users` endpoint. The browser's address bar shows the URL `127.0.0.1:8000/docs#/default/get_users_users_get`. The documentation page has a light blue header with the endpoint `GET /users` and the description `Get Users`. Below the header, there is a 'Parameters' section with two input fields: `limit` (integer, query) and `offset` (integer, query), both set to `5`. There is an 'Execute' button and a 'Clear' button. Below the parameters, there is a 'Responses' section. The first response is a `200` status code. The response body is a JSON object:

```
{
  "totalAmount": 100,
  "userAddress": {
    "city": "Barcelona",
    "country": "Spain",
    "zipCode": "12345"
  },
  "orderID": "ORD01234",
  "timestamp": "2023-07-09T15:54:01.821558",
  "items": [
    {
      "productID": "P01234",
      "boughtQuantity": 10
    }
  ],
  "totalAmount": 100,
  "userAddress": {
    "city": "New Delhi",
    "country": "India",
    "zipCode": "12345"
  },
  "total": 10,
  "limit": 5,
  "offset": 5
}
```

. The response headers are: `content-length: 1068`, `content-type: application/json`, `date: Sun, 09 Jul 2023 10:24:22 GMT`, and `server: uvicorn`. The browser's taskbar at the bottom shows the system clock as 03:58 PM on 09-07-2023.

SAMPLE 2:

The screenshot shows a web API client interface. The top section displays the endpoint `GET /users` with parameters `limit=3` and `offset=9`. The `Execute` button is clicked. Below, the `Responses` section shows the `Curl` command and the `Request URL`. The `Server response` section shows the `Code` (200) and the `Response body` (a JSON array of 3 user objects). The `Response headers` section shows the `content-length` (676), `content-type` (application/json), `date` (Sun, 09 Jul 2023 18:29:03 GMT), and `server` (uvicorn). A `Download` button is visible next to the response body.

Parameters

Name	Description
limit	integer (query)
offset	integer (query)

Execute Clear

Responses

Curl

```
curl -X 'GET' \
  'http://127.0.0.1:8000/users?limit=3&offset=9' \
  -H 'accept: application/json'
```

Request URL

```
http://127.0.0.1:8000/users?limit=3&offset=9
```

Server response

Code

200

Response body

```
{
  "totalAmount": 10,
  "userAddress": {
    "city": "New York",
    "country": "United States",
    "zipCode": "12345"
  },
  "orderID": "ORD23456",
  "timestamp": "2023-07-09T15:54:01.821558",
  "items": [
    {
      "productID": "P23456",
      "boughtQuantity": 2
    }
  ],
  "totalAmount": 20,
  "userAddress": {
    "city": "London",
    "country": "United Kingdom",
    "zipCode": "12345"
  },
  "total": 10,
  "limit": 3,
  "offset": 9
}
```

Response headers

```
content-length: 676
content-type: application/json
date: Sun, 09 Jul 2023 18:29:03 GMT
server: uvicorn
```

Download

The downaloded json body after setting the limit and the offset

```
{
  "items": [
    {
      "orderID": "ORD01234",
```

```
"timestamp": "2023-07-09T15:54:01.821558",
"items": [
  {
    "productId": "P01234",
    "boughtQuantity": 10
  }
],
"totalAmount": 100,
"userAddress": {
  "city": "New Delhi",
  "country": "India",
  "zipCode": "12345"
}
},
{
  "orderId": "ORD12345",
  "timestamp": "2023-07-09T15:54:01.821558",
  "items": [
    {
      "productId": "P12345",
      "boughtQuantity": 1
    }
  ],
  "totalAmount": 10,
  "userAddress": {
    "city": "New York",
    "country": "United States",
    "zipCode": "12345"
  }
},
{
  "orderId": "ORD23456",
  "timestamp": "2023-07-09T15:54:01.821558",
  "items": [
    {
      "productId": "P23456",
      "boughtQuantity": 2
    }
  ],
  "totalAmount": 20,
  "userAddress": {
    "city": "London",
    "country": "United Kingdom",
    "zipCode": "12345"
  }
}
],
"total": 16,
"limit": 3,
"offset": 9
}
```

4. API to fetch a single order from the system using Order ID

CODE:

```
from fastapi import FastAPI
from pydantic import BaseModel
from datetime import datetime

app4 = FastAPI()

class Item(BaseModel):
    productId: str
    boughtQuantity: int

class UserAddress(BaseModel):
    city: str
    country: str
    zipCode: str

class Order(BaseModel):
    orderID: str
    timestamp: datetime = None
    items: list[Item]
    totalAmount: float
    userAddress: UserAddress

orders = [
    Order(
        orderID="ORD12345",
        timestamp=datetime.now(),
        items=[Item(productId="P12345", boughtQuantity=1)],
        totalAmount=10.0,
        userAddress=UserAddress(city="New York", country="United States",
zipCode="12345")
    ),
    Order(
        orderID="ORD23456",
        timestamp=datetime.now(),
        items=[Item(productId="P23456", boughtQuantity=2)],
        totalAmount=20.0,
```

```

        userAddress=UserAddress(city="London", country="United Kingdom",
zipCode="12345")
    ),
    Order(
        orderID="ORD34567",
        timestamp=datetime.now(),
        items=[Item(productId="P34567", boughtQuantity=3)],
        totalAmount=30.0,
        userAddress=UserAddress(city="Paris", country="France",
zipCode="12345")
    ),
    Order(
        orderID="ORD45678",
        timestamp=datetime.now(),
        items=[Item(productId="P45678", boughtQuantity=4)],
        totalAmount=40.0,
        userAddress=UserAddress(city="Tokyo", country="Japan", zipCode="12345")
    )
]

```

```

@app4.post("/create-orders")
def create_order(
    orderid: str,
    items: list[Item],
    totalAmount: float,
    city: str,
    country: str,
    zipCode: str
):
    order = Order(
        orderID=orderid,
        timestamp=datetime.now(),
        items=items,
        totalAmount=totalAmount,
        userAddress=UserAddress(city=city, country=country, zipCode=zipCode)
    )

    orders.append(order)
    return {"message": "Order created successfully"}

```

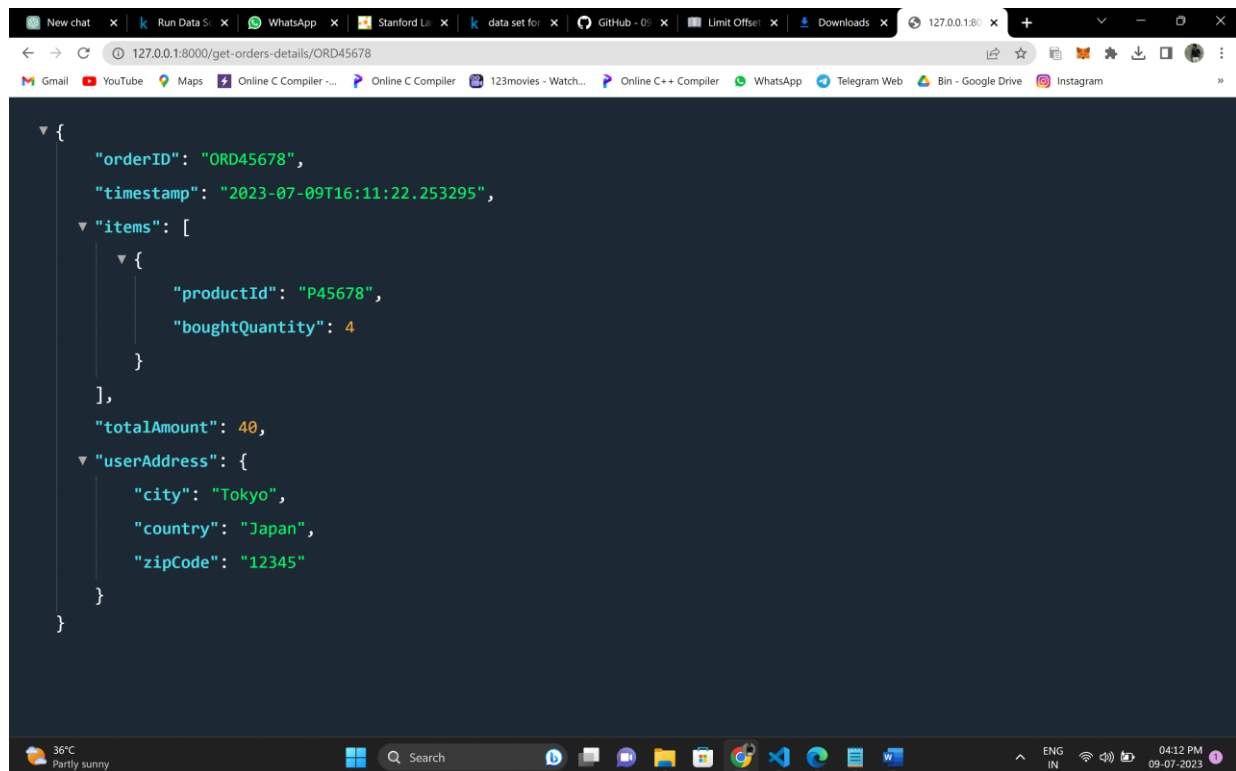
```

@app4.get("/get-orders-details/{order_id}")
def get_orders(order_id : str):
    for temp_order in orders:
        if temp_order.orderID == order_id:
            return temp_order

```

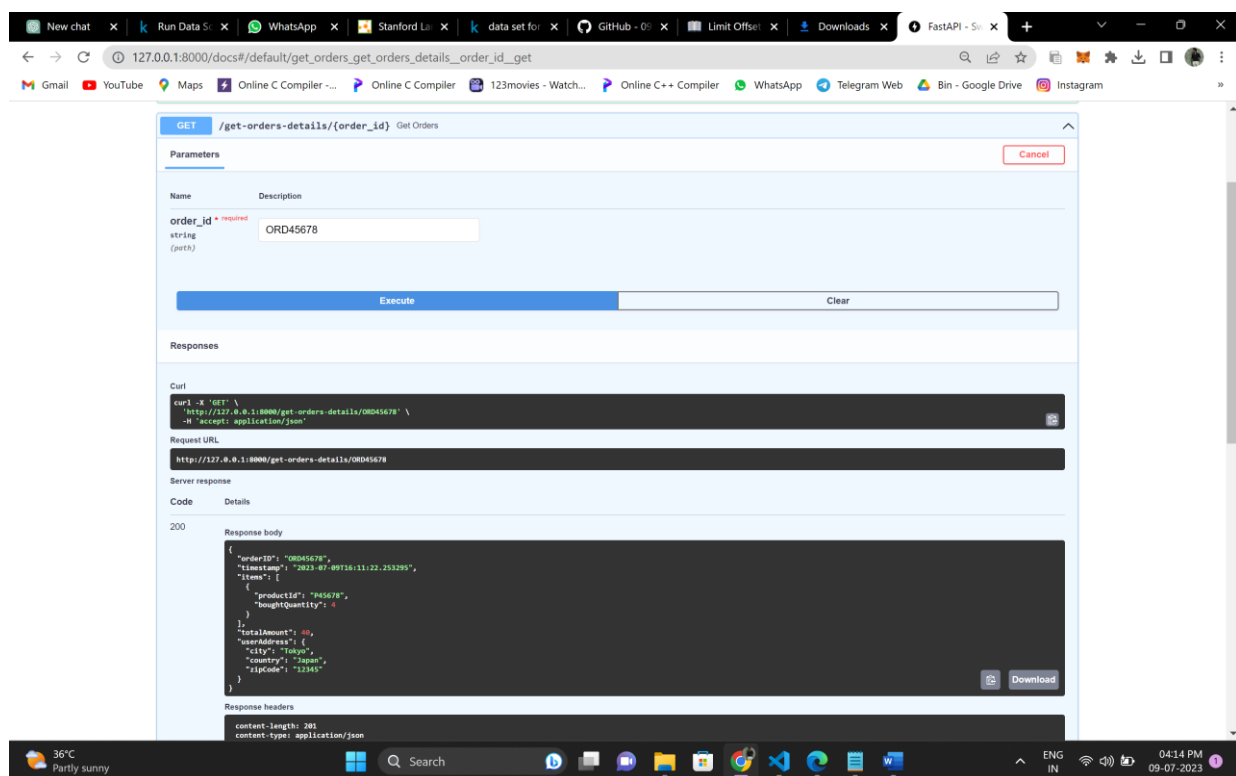
SAMPLE 1:

Through the URL (JSON beatify viewer used)



```
{
  "orderId": "ORD45678",
  "timestamp": "2023-07-09T16:11:22.253295",
  "items": [
    {
      "productId": "P45678",
      "boughtQuantity": 4
    }
  ],
  "totalAmount": 40,
  "userAddress": {
    "city": "Tokyo",
    "country": "Japan",
    "zipCode": "12345"
  }
}
```

Through the docs



GET /get-orders-details/{order_id} Get Orders

Parameters

Name	Description
order_id * required	

string (path)

ORD45678

Execute Clear

Responses

Curl

```
curl -X 'GET' \
  'http://127.0.0.1:8000/get-orders-details/ORD45678' \
  -H 'accept: application/json'
```

Request URL

```
http://127.0.0.1:8000/get-orders-details/ORD45678
```

Server response

Code	Details
200	

Response body

```
{
  "orderId": "ORD45678",
  "timestamp": "2023-07-09T16:11:22.253295",
  "items": [
    {
      "productId": "P45678",
      "boughtQuantity": 4
    }
  ],
  "totalAmount": 40,
  "userAddress": {
    "city": "Tokyo",
    "country": "Japan",
    "zipCode": "12345"
  }
}
```

Response headers

```
content-length: 201
content-type: application/json
```

5. API to update a product when updating the available quantity for the product.

CODE:

```
from fastapi import FastAPI

app5 = FastAPI()

products = [
    {"name": "laptop", "price": 30000, "available_quantity": 200},
    {"name": "computer", "price": 40000, "available_quantity": 150},
    {"name": "earpods", "price": 7000, "available_quantity": 300},
    {"name": "headphones", "price": 3000, "available_quantity": 120},
    {"name": "type c charger", "price": 1250, "available_quantity": 700},
    {"name": "mobile", "price": 20000, "available_quantity": 1000},
    {"name": "ipod", "price": 60000, "available_quantity": 190},
    {"name": "smartwatch", "price": 5000, "available_quantity": 250},
    {"name": "Bluetooth speaker", "price": 2500, "available_quantity": 400},
    {"name": "external hard drive", "price": 6000, "available_quantity": 180},
    {"name": "printer", "price": 8000, "available_quantity": 90},
    {"name": "wireless mouse", "price": 1000, "available_quantity": 600},
    {"name": "keyboard", "price": 1500, "available_quantity": 450},
    {"name": "portable SSD", "price": 7000, "available_quantity": 350},
    {"name": "gaming console", "price": 25000, "available_quantity": 80},
    {"name": "graphics card", "price": 15000, "available_quantity": 200},
    {"name": "smartphone tripod", "price": 500, "available_quantity": 800},
    {"name": "USB flash drive", "price": 500, "available_quantity": 1000},
    {"name": "webcam", "price": 3000, "available_quantity": 250},
    {"name": "Bluetooth earphones", "price": 2500, "available_quantity": 500}
]

@app5.get("/update-product-quantity")
def update_quantity(product_name : str, New_quantity_to_be_added : int):
    for product in products:
        if product["name"] == product_name:
            product["available_quantity"] += New_quantity_to_be_added
            return product
    return {"error": "this product is a new product "}

@app5.get("/get-details/{product_name}")
def get_details(product_name : str):
    for product in products:
        if product["name"] == product_name:
            return product
    return {"error": "no such product available"}
```


127.0.0.1:8000/docs/default/get_details_get_details_product_name_get

Parameters

Name	Description
product_name * required	
string (path)	laptop

Execute Clear

Responses

Curl

```
curl -X 'GET' \
  'http://127.0.0.1:8000/get-details/laptop' \
  -H 'accept: application/json'
```

Request URL

http://127.0.0.1:8000/get-details/laptop

Server response

Code	Details
200	<p>Response body</p> <pre>{ "name": "laptop", "price": 35000, "available_quantity": 200 }</pre> <p>Response headers</p>

Download

127.0.0.1:8000/docs/default/update_quantity_update_product_quantity_get

default

GET /update-product-quantity Update Quantity

Parameters

Name	Description
product_name * required	
string (query)	laptop
New_quantity_to_be_added * required	
integer (query)	190

Execute Clear

Responses

Curl

```
curl -X 'GET' \
  'http://127.0.0.1:8000/update-product-quantity?product_name=laptop&New_quantity_to_be_added=190' \
  -H 'accept: application/json'
```

Request URL

Browser tabs: New chat, (1) WhatsApp, (PDF) Wireless Traffic Usage Fo..., FastAPI - Swagger UI, Downloads.

Address bar: 127.0.0.1:8000/docs#/default/update_quantity_update_product_quantity_get

Navigation bar: Gmail, YouTube, Maps, Online C Compiler..., Online C Compiler, 123movies - Watch..., Online C++ Compiler, WhatsApp, Telegram Web, Bin - Google Drive, Instagram.

Name | **Description**

product_name * required
string
(path)

laptop

Execute Clear

Responses

Curl

```
curl -X 'GET' \  
  'http://127.0.0.1:8000/get-details/laptop' \  
  -H 'accept: application/json'
```

Request URL

```
http://127.0.0.1:8000/get-details/laptop
```

Server response

Code	Details
200	<p>Response body</p> <pre>{ "name": "laptop", "price": 30000, "available_quantity": 390 }</pre> <p>Response headers</p> <pre>content-length: 56 content-type: application/json date: Sun, 09 Jul 2023 11:15:15 GMT server: uvicorn</pre>