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Bazar.com Microwebservices

As requested we have built 3 separate webservices using Flask.The services are running on separate containers.To save time we have also used Docker Compose to build and run the services.To use the services run this command in the project directory ***sudo docker-compose -f compose.yaml up --build.***

Catalog Microservice

The catalog microservice is the backbone of the project .The gateway and the purchase API rely on it. The service simply queries the database using a book number or a topic and in addition to that updates a book's price or its stock count.We have used SQLite for the database in the catalog and purchase services.

The service has 2 endpoints

PATCH http://172.17.0.1:5050/update

```
{
"item_number":string,
"cost":float/decimal (optional),
"stcok_count":integer (optional),
}
```

which updates an item's price or stock count (changes the value by the **stock_count** field up or down) or its price.The endpoint can update one or two fields but not none.

GET http://172.17.0.1:5050/query?item_number=string&topic=string

This endpoint receives one of the parameters[specified above (but not booth) and performs a query based on their values.If the topic parameter is present then all the books related to the topic is returned if the item number is present then the item is returned.

if an item or a topic does not exist the response will be something like this

```
{"error":"Something went wrong,make sure that topic/item_number
{topic/item_number} exists"} 404
```

if a field or a parameter is missing or if something went wrong then the response would be:

```
{"message": "Invalid query parameters"} , {"message": "No query string found
in the request"},{"message": "Invalid request data or missing item number"}
```

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A better design approach would be using POST for the query endpoint instead of GET .This allows for more fields to be used in the query and for a shorter more readable endpoint.

Purchase Microservice

We built this service API for handling the purchase orders based on the item number. It depends on the catalog server for searching about if the book exists in the database and for decrementing the stock count by one. and register the order on its own database using sqlite.

The service has one endpoint

GET 172.17.0.1:5060/purchase/<ItemNum>

First the service send a request to catalog API for searching about the book based on its item number using this link

GET http://172.17.0.1:5050/query

if some error occurred the response will be this json message

```
{
'error': 'Failed to fetch data'
}
```

If the book is out of stock the response will be like that

```
{
'purchase' : "this book is out of stock"
}
```

Then if the book exists the API sends an update request for decrementing the stock count by one using this link

Patch http://172.17.0.1:5050/update

```
{
'stock_count' : -1

,'item_number' : data['ItemNumber']}
}
```

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Now if the purchase go successfully it response like that

```
{
  'message' : 'successfully purchased number =' + ItemNum
}
```

otherwise if its failed the response will be :-

```
{
 'message' : 'failure purchased number =' + ItemNum
}
```

Frontend Microservice

This service is used in order to link the request into the proper microservice whether it is catalog server or purchase server using this endpoint format.

http://172.17.0.1:8080/

And Here are all the possible requests we can do to our project (using postman)

a-catalog server directly
1-

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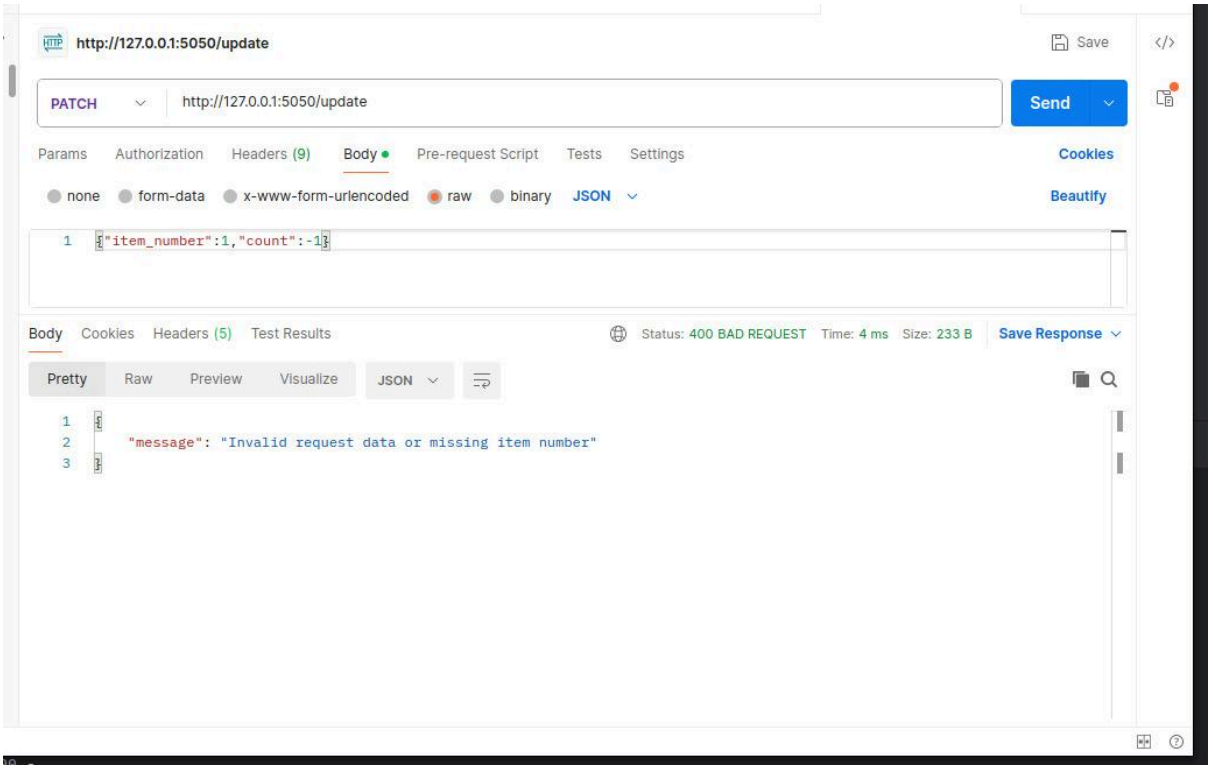
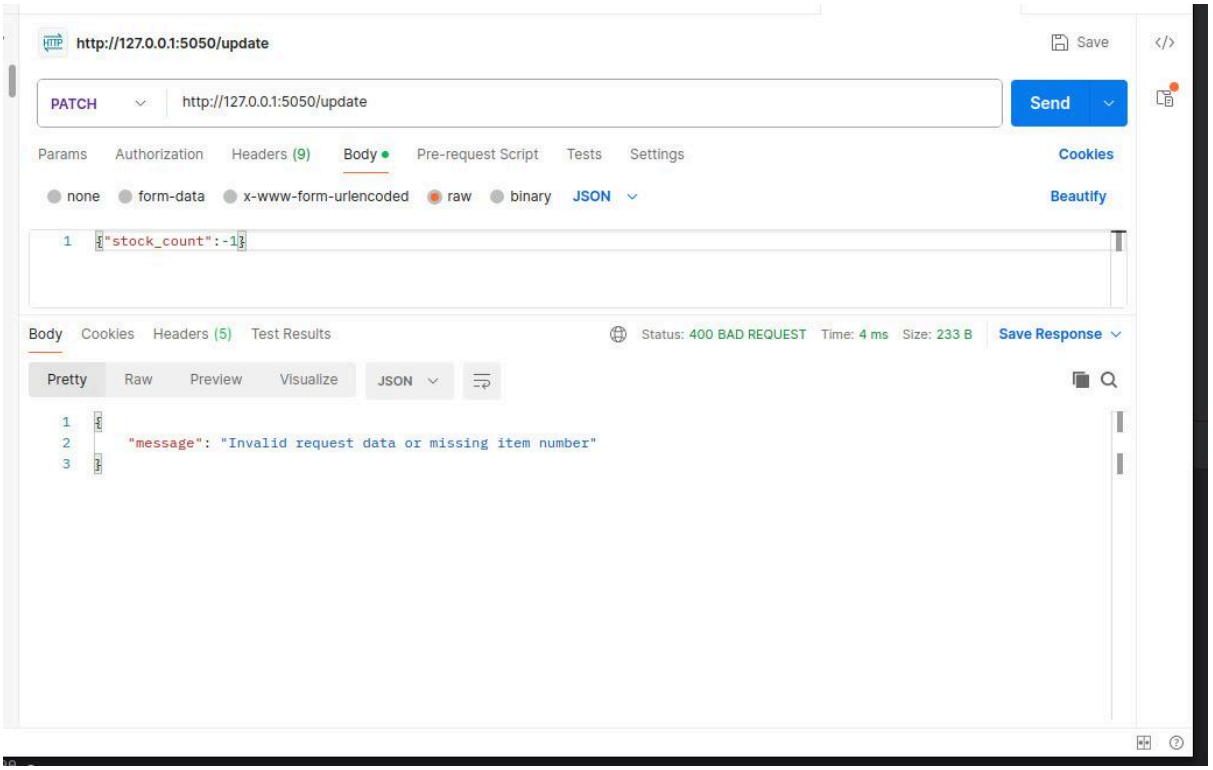


2-



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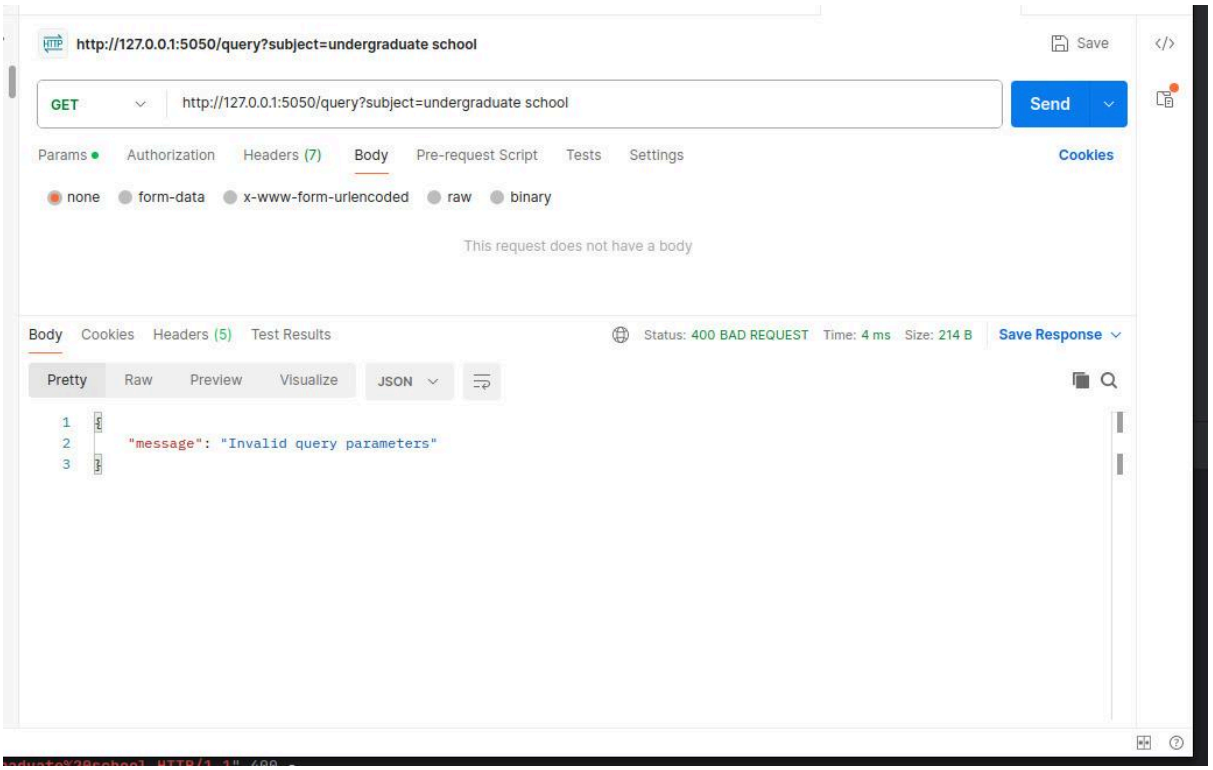
3-



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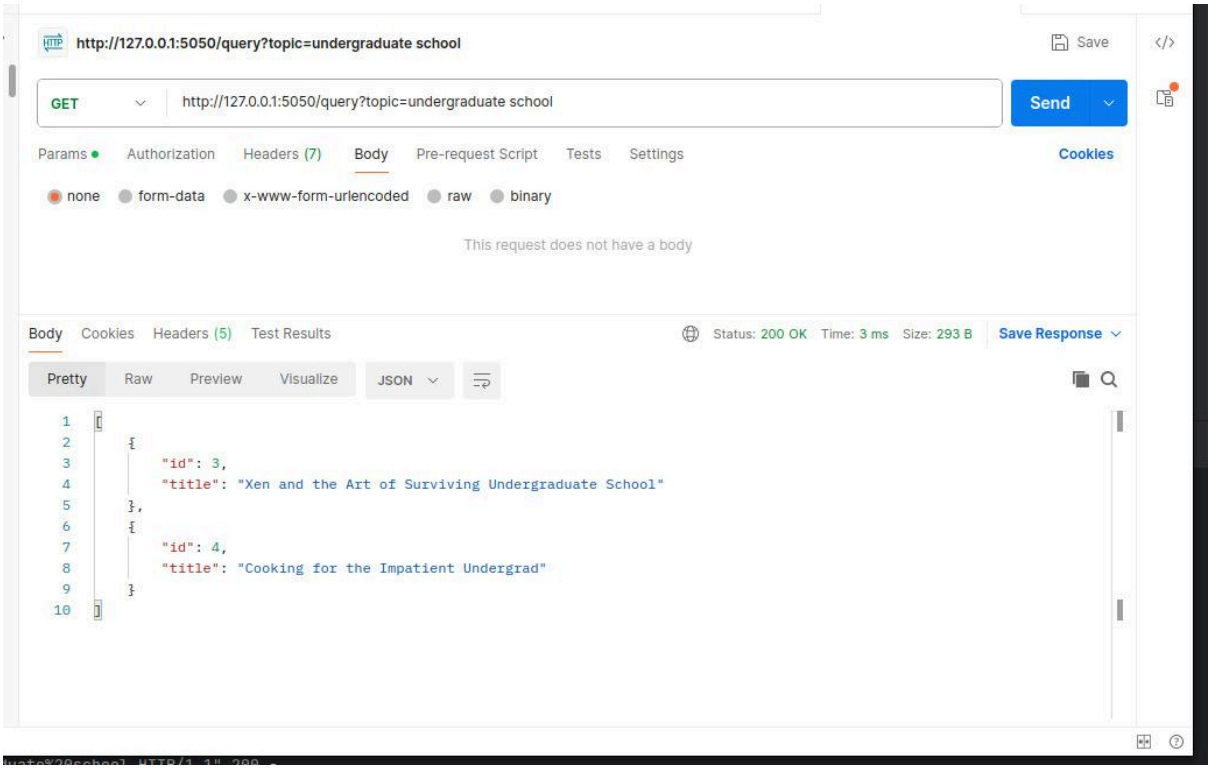

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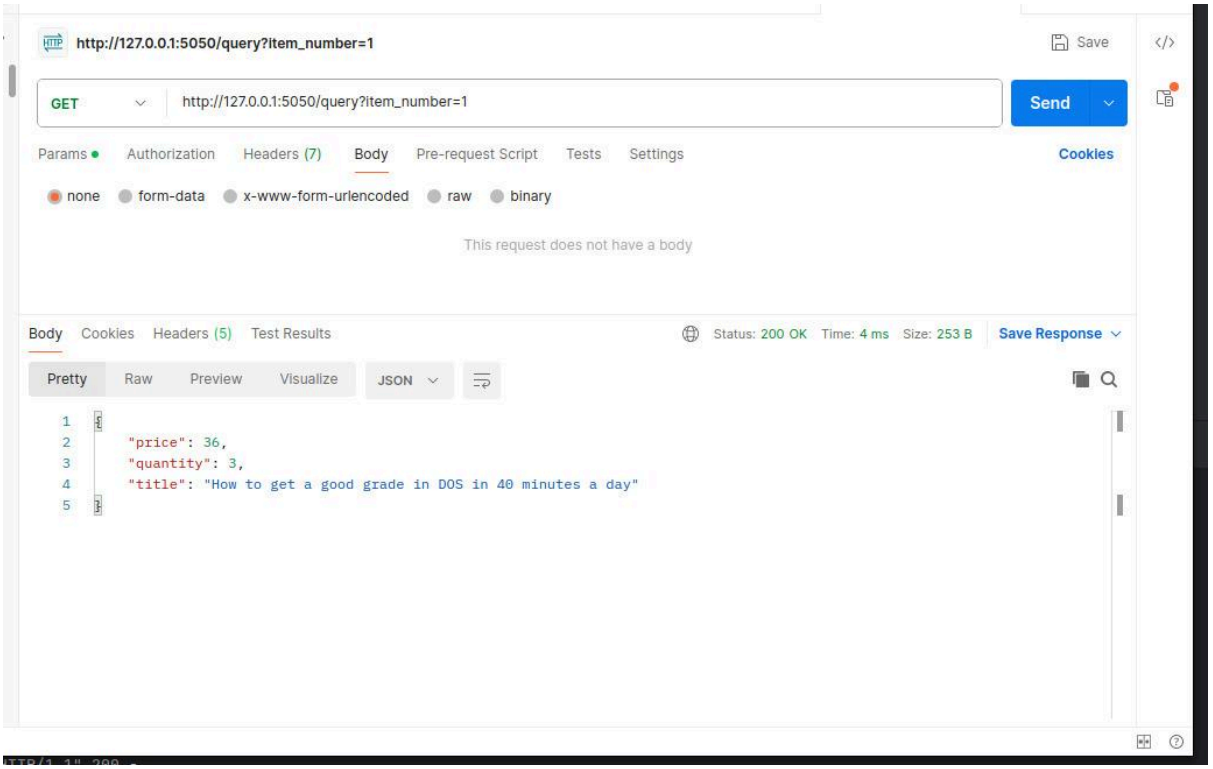
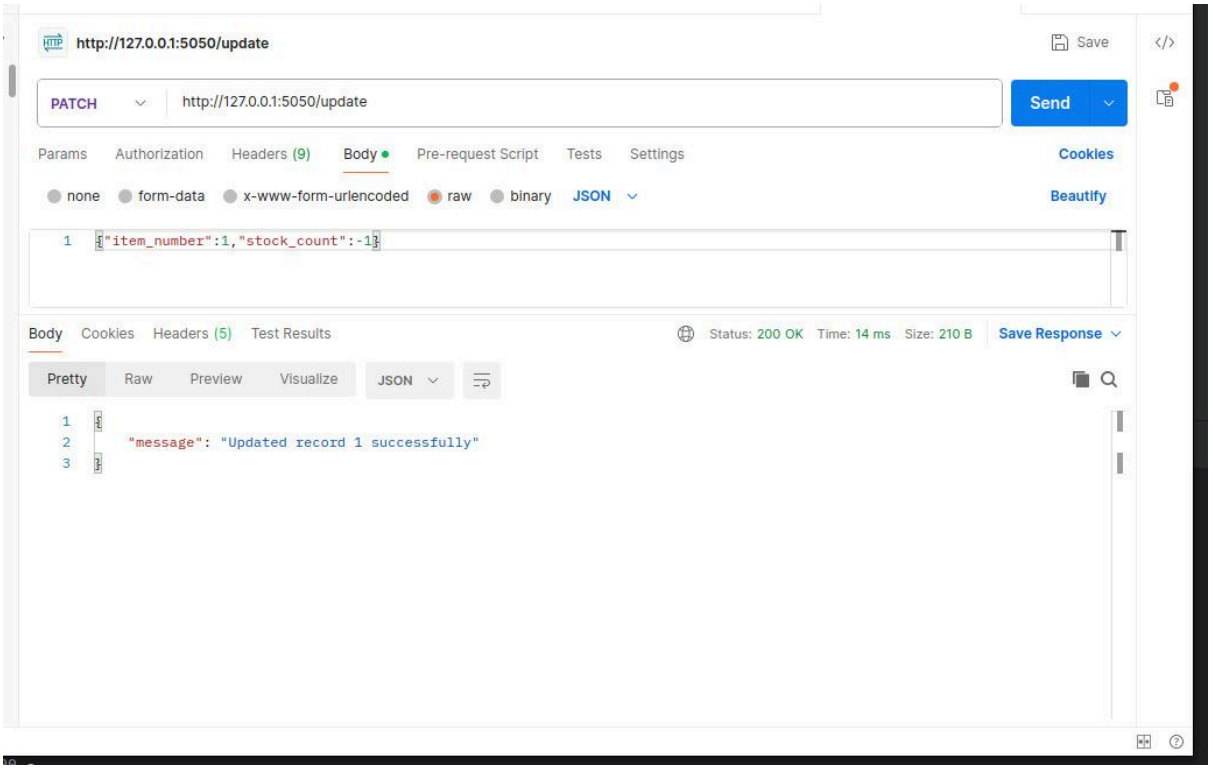


6-



b-using the frontend

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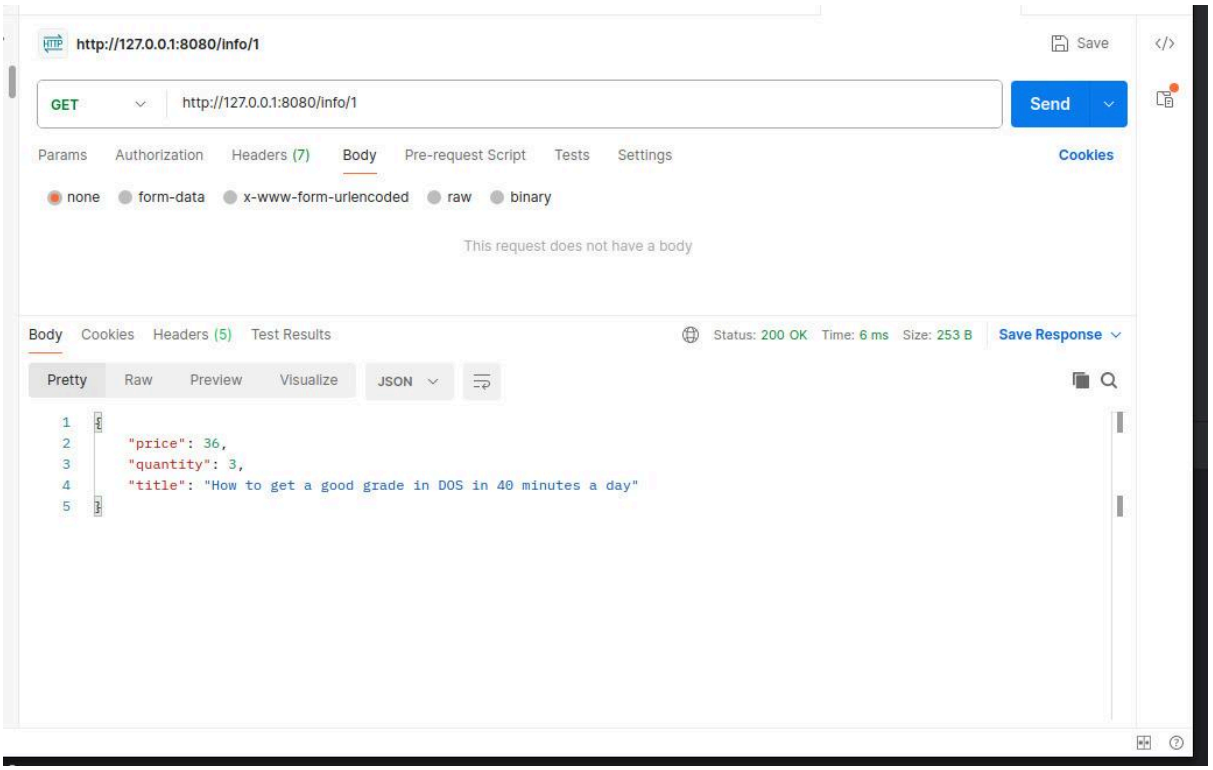
1-



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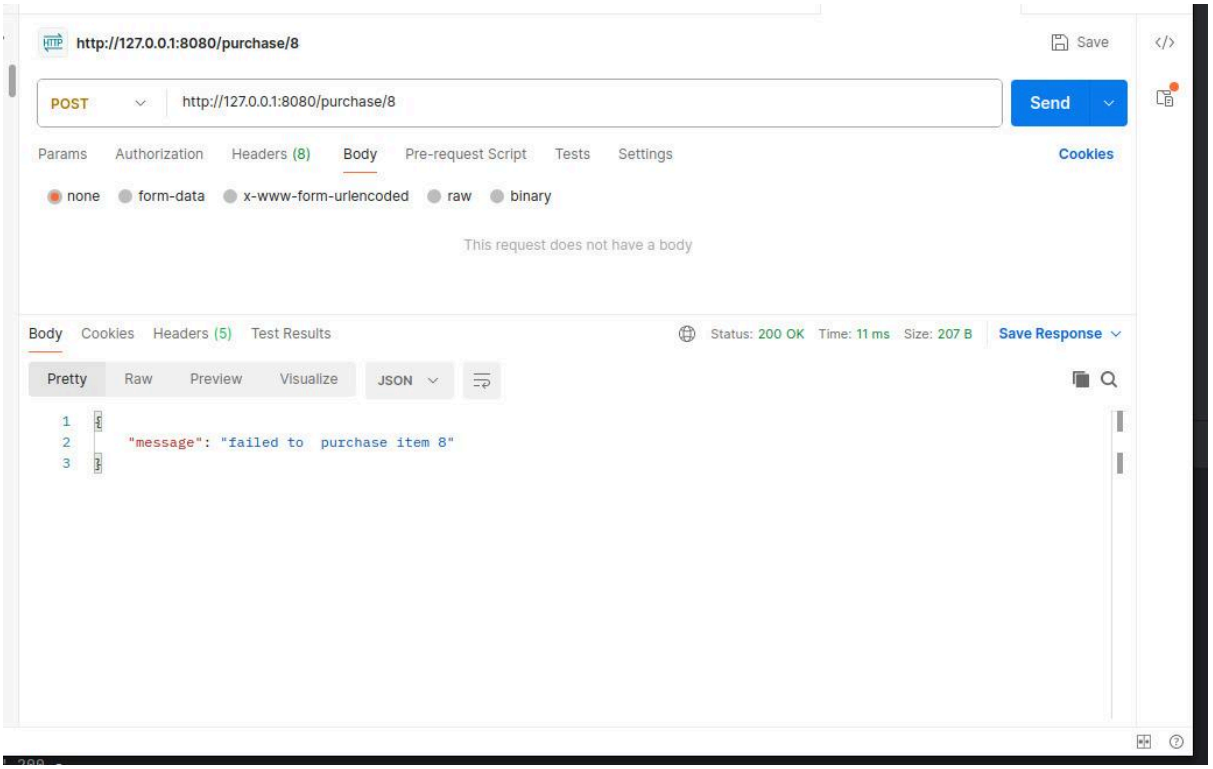

3-

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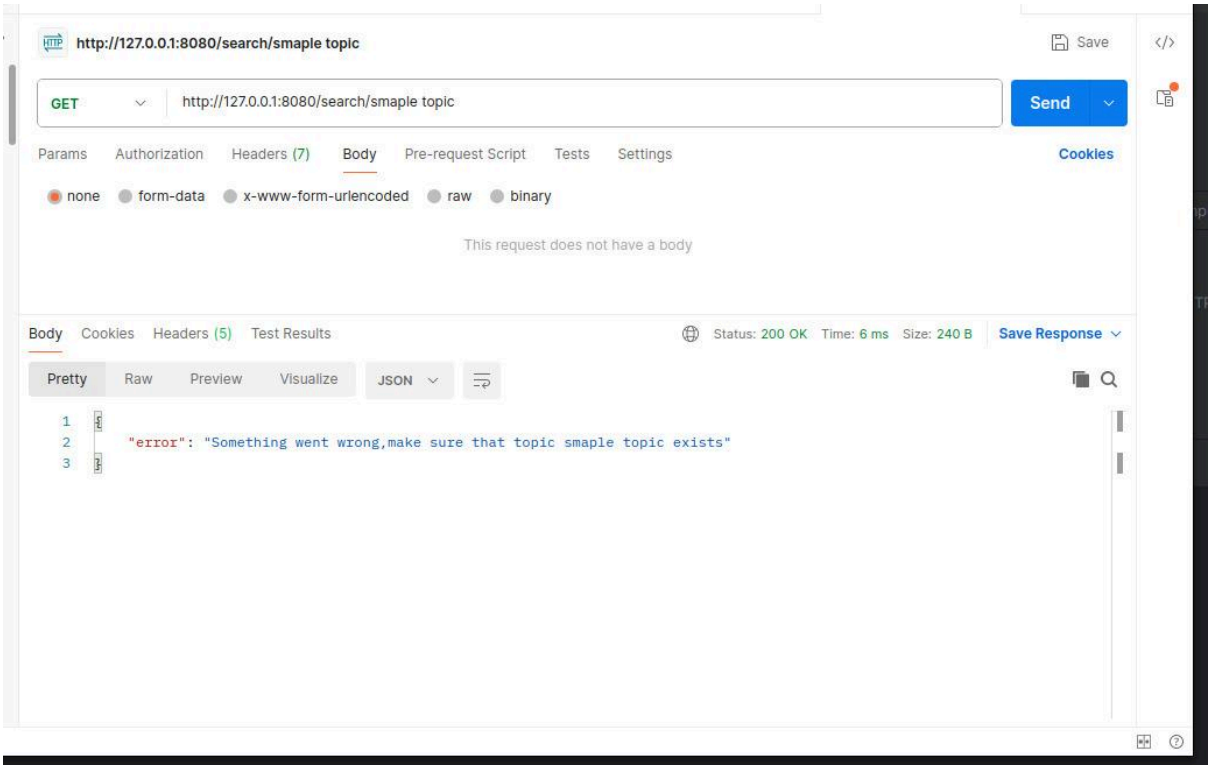

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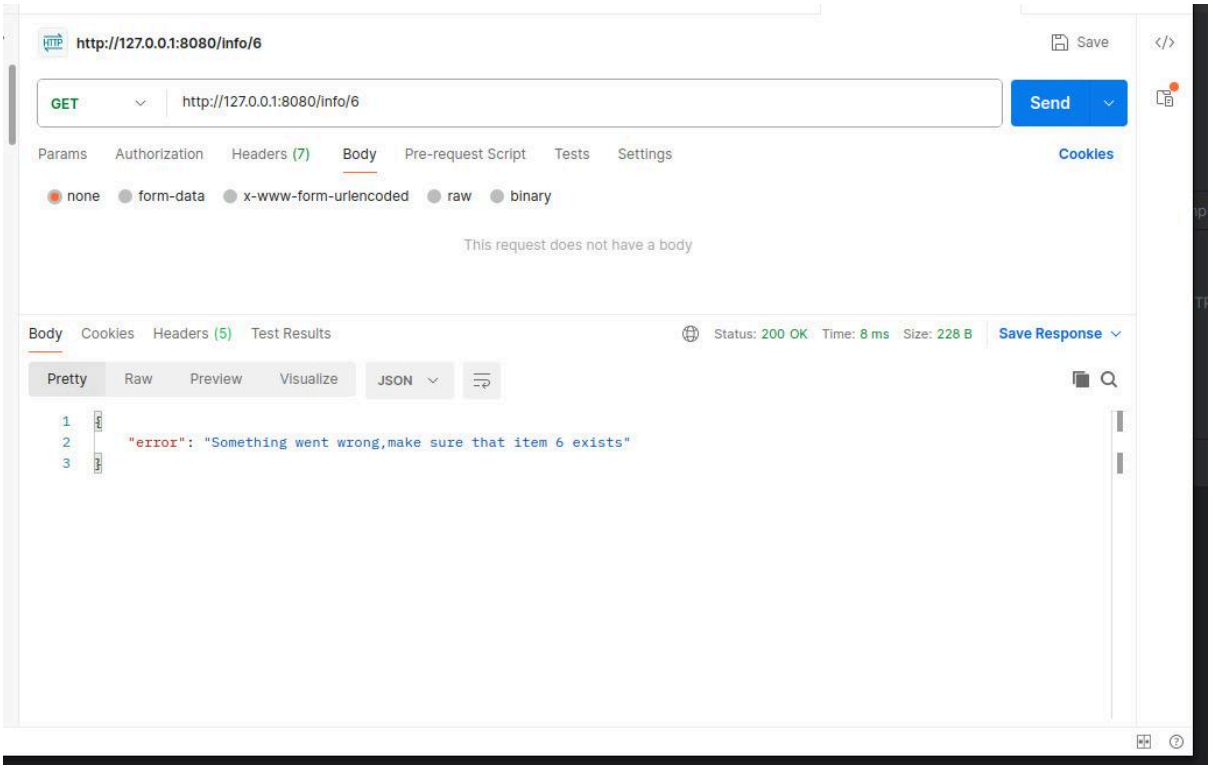

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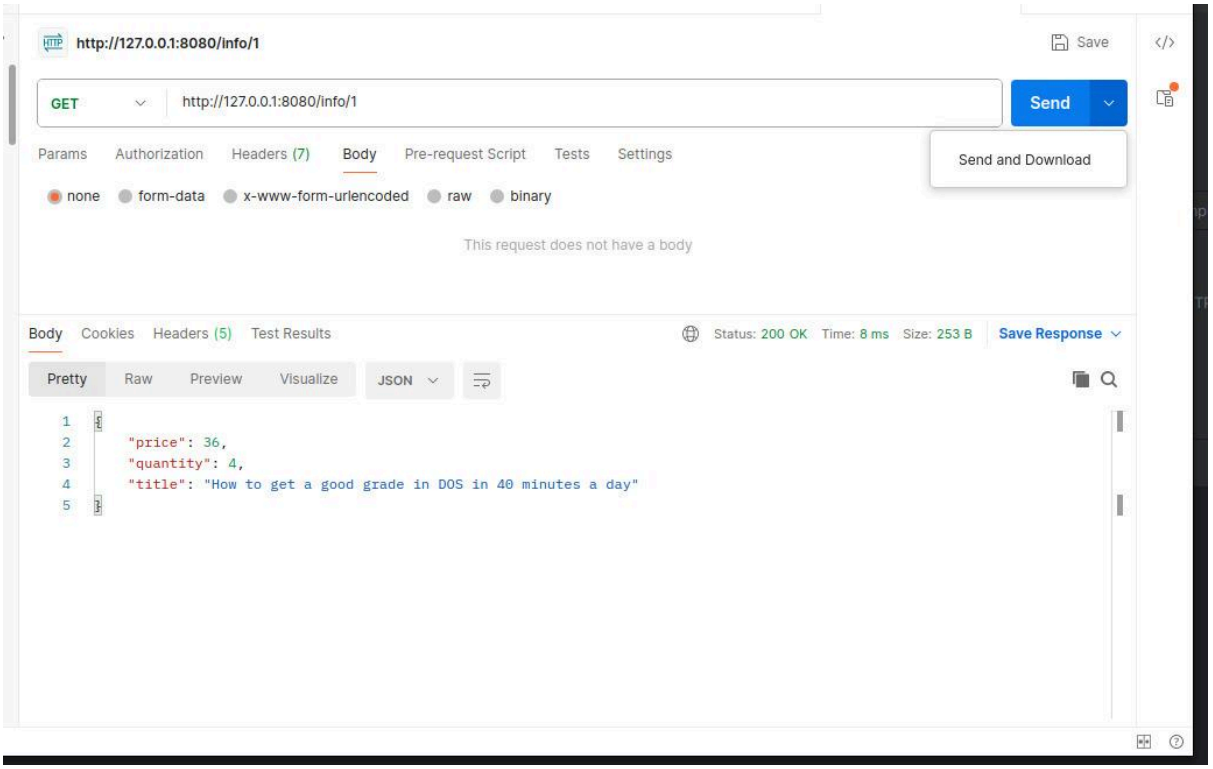

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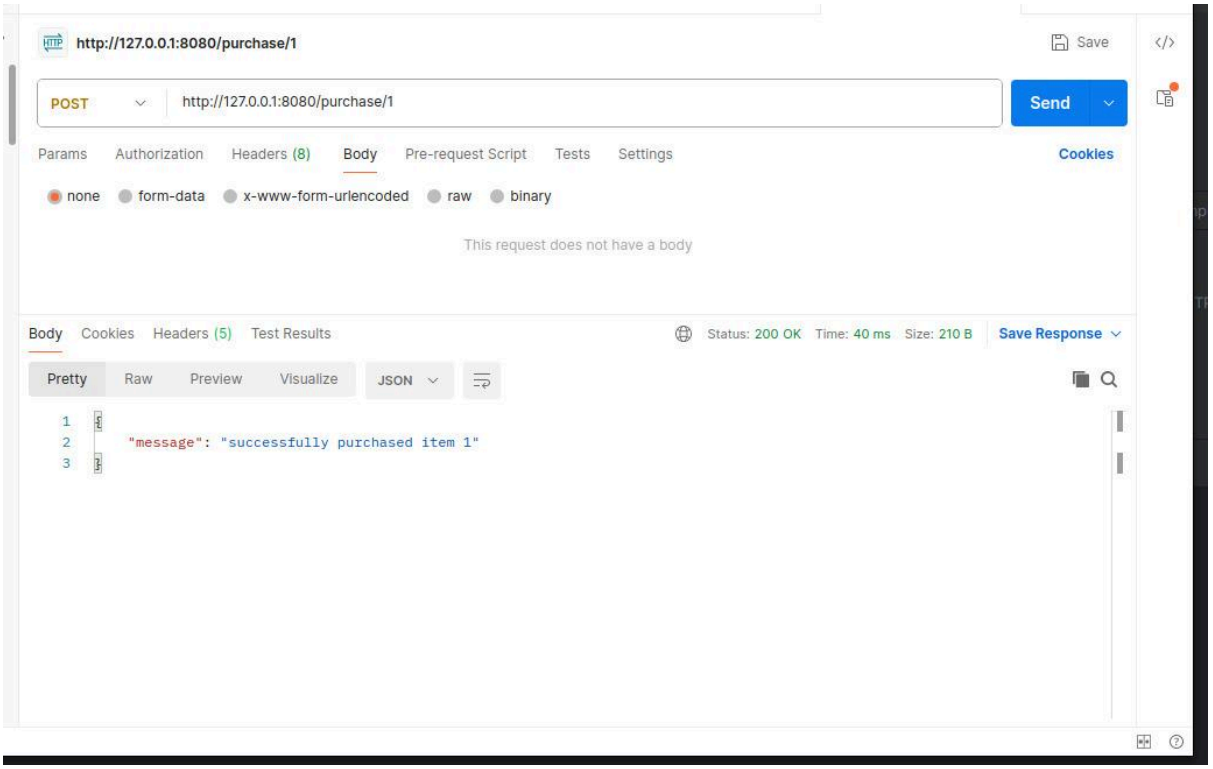

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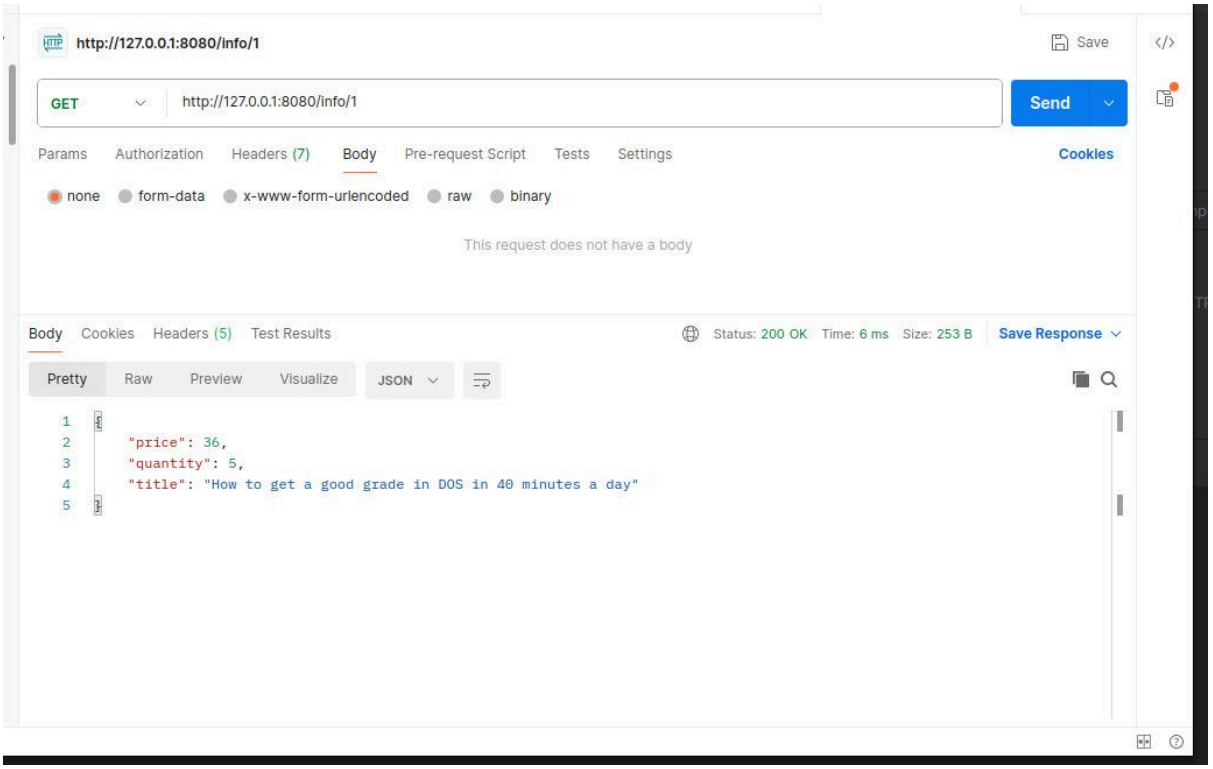

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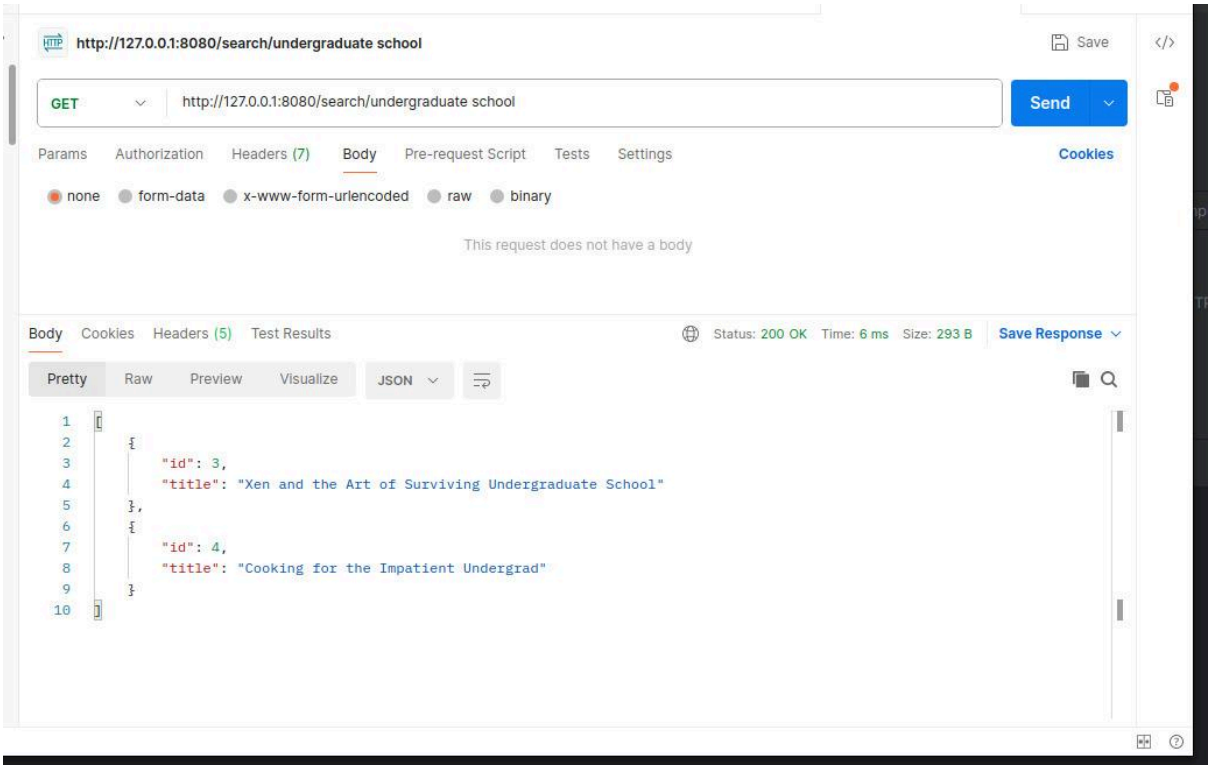

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