ENSF381 – Lab09

Section: L01/L02/L03 *[Keep only one] [They must keep only one, if they made mistake write a note in the feedback section. Don't deduct any mark for wrong value]*

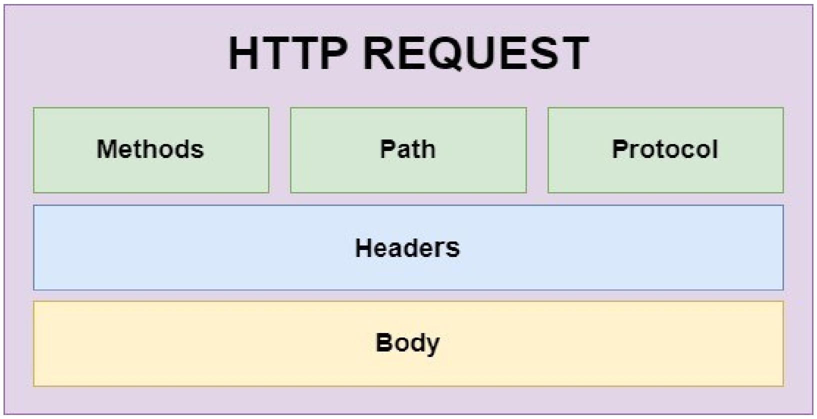
Date: 2024-03-18 *[They must write the correct date. For L01 March 18, for L02/L03 March 20. If they made mistake write a note in the feedback section. Don't deduct any mark for wrong value]*

Created by:		
First name	Last name	UCID
A	B	123
C	D	456

[Check the name. If they made mistake write a note in the feedback section. Don't deduct any mark for wrong name or wrong UCID]

2.1.1

[2.5 marks, sample answer is here. Don't be rigid. We don't need a reference for this question as it was part of the course materials.]



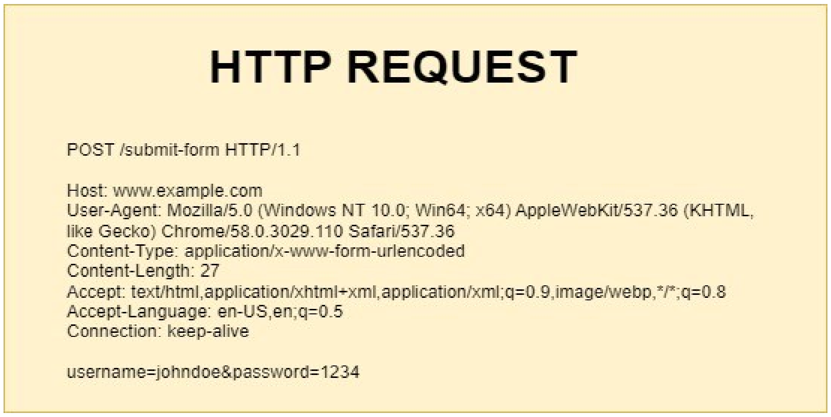
1) **Request Line**: An HTTP request starts with a request line, which includes the following:

- Method: This indicates the action to be performed on the resource. Common methods include GET (retrieve a resource), POST (submit data to the server), PUT (update a resource), DELETE (remove a resource), and others.
- Request URL: The URL of the resource being requested.
  HTTP Version: The version of the HTTP protocol being used.

2) **Request Headers**: Following the request line are headers, which provide additional information about the request. This can include details about the client's browser, the types of responses that the client will accept, cookies, and more.

- Blank Line: A blank line indicates the end of the headers section.

3) **Request Body (Optional):** Not all requests have a body. Bodies are typically included in POST or PUT requests, where you're sending data to the server (like form inputs or file uploads). The body contains the data being sent.

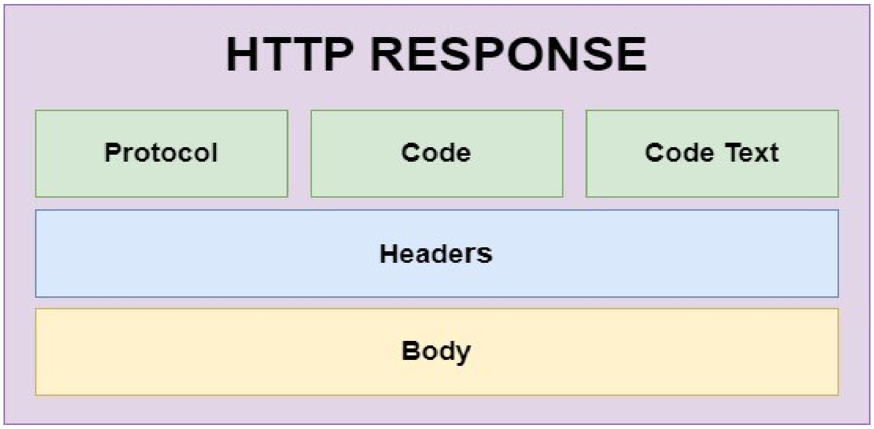


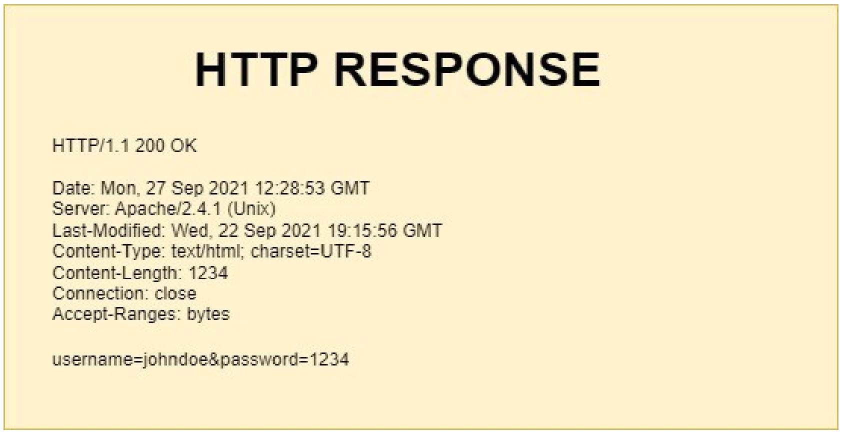
HTTP REQUEST

```
POST /submit-form HTTP/1.1

Host: www.example.com
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML,
like Gecko) Chrome/58.0.3029.110 Safari/537.36
Content-Type: application/x-www-form-urlencoded
Content-Length: 27
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Connection: keep-alive

username=johndoe&password=1234
```

2.1.2

[10 marks, sample answer is here. Don't be rigid. We don't need a reference for this question as it was part of the course materials.]





HTTP RESPONSE

```
HTTP/1.1 200 OK

Date: Mon, 27 Sep 2021 12:28:53 GMT
Server: Apache/2.4.1 (Unix)
Last-Modified: Wed, 22 Sep 2021 19:15:56 GMT
Content-Type: text/html; charset=UTF-8
Content-Length: 1234
Connection: close
Accept-Ranges: bytes

username=johndoe&password=1234
```

1) **Status Line**: This is the first line of the response and includes:

- **HTTP Version**: Indicates the HTTP protocol version used (e.g., HTTP/1.1).
- **Status Code**: A three-digit number that indicates the outcome of the request. Common status codes include 200 (OK, request succeeded), 404 (Not Found, the resource can't be found), 500 (Internal Server Error), etc.
- **Status Text**: A brief, human-readable explanation of the status code (e.g., OK, Not Found, Internal Server Error).

2) **Response Headers**: These are key-value pairs providing additional information about the response. They can include details such as the server type, content type, content length, caching policies, set cookies, and other metadata.

- **Blank Line**: A blank line signifies the end of the header section.

3) **Response Body**: This part of the response contains the actual data or resource that the client requested. For example, it could be an HTML file, JSON data, an image, etc. In some cases,

particularly when the response indicates an error (like a 404), the body might contain a message explaining the error.

HTTP status codes

• 1xx (Informational): A 1xx Informational status code means that the server has received the request and is continuing the process.

1) **100 Continue**: The initial part of the request has been received by the server and that the client should proceed with the request or ignore the response if the request has already finished.
2) **101 Switching protocol**: The server understands the Upgrade header field request and indicates which protocol it is switching to.
3) **102 Processing:** The server has accepted the full request but has not yet completed it and no response is available yet.

• 2xx (Success): A 2xx Successful status code means that the request was successful, and the browser has received the expected information. This is generally the one you want to see, as it means that the request was a success and has been received, understood, and accepted it. As a website owner you should make sure that all pages and resources (images, videos, etc.) all return a 2xx status code. This means that browsers can reach it successfully and that your website visitors can see and use your website.

1) **200 OK**:The request was successful, but the meaning of success depends on the request method used:
   GET: The requested resource has been fetched and transmitted to the message body.
   HEAD: The header fields from the requested resource are sent in without the message body.
   POST or PUT: A description of the result of the action is transmitted to the message body.
   TRACE: The request messages, as received by the server, will be included in the message body

2) **201 Created:** The request was successfully fulfilled and resulted in one or possibly multiple new resources being created.
3) **202 Accepted**: The request has been accepted for processing, but the processing has not been finished yet. The request may or may not be completed when the processing eventually takes place.

• 3xx (Redirection): A 3xx Redirection status code means that you have been redirected and the completion of the request requires further action. Redirects are a natural part of the internet and you shouldn't be scared to have 3xx redirect status codes on your website.

1) **300 Multiple Choices:** The request has multiple possible responses, and the user/user agent should choose one.
2) **301 Moved Permanently**: The target resource has been assigned a new permanent URL and any references to these resources in the future should use one of the URLs included in the response.

3) **302 Found (Previously "Moved temporarily"):** RI of the request has been changed temporarily, and since changes can be made to the URI in the future, the effective request URI should be used for future requests.

• 4xx (Client Error): website or the page could not be reached and either the page is unavailable or the request contains bad syntax. As a website owner you should do your best to avoid these, as it means your users will not find what they're looking for.

1) **400 Bad Request**: server could not understand the request because of invalid syntax.
2) **403 Forbidden**: client request has been rejected because the client does not have rights to access the content. Unlike a 401 error, the client's identity is known to the server, but since they are not authorized to view the content, giving the proper response is rejected by the server.
3) **404 Not Found**: server either did not find a current representation for the requested resource or is trying to hide its existence from an unauthorized client.

• 5xx (Server Error): A 5xx Server error status code means that while the request appears to be valid, the server could not complete the request. If you're experiencing 5xx server errors for your website, you should immediately look at your server. If you're hosting your own server you'll need to start debugging to figure out why it is not responding properly.

1) **502 Bad Gateway**: server received an invalid response while working as a gateway to handle the response.
2) **504 Gateway Timeout**: server acting as a gateway could not get a response time.
3) **505 HTTP Version Not Supported**: the version of HTTP used in the request is not supported by the server.

2.1.3

[2.5 marks, sample answer is here. Don't be rigid. We don't need a reference for this question as it was part of the course materials.]

Correlation Between CRUD Operations and HTTP Methods

1) Create
- HTTP Method: POST
- This method is used to submit an entity to the specified resource, often causing a change in state on the server.
- Example: Creating a new user account or posting a new message in a forum.
- Code: response = requests.post(url, json=user_data)

2) Read
- HTTP Method: GET
- This method requests a representation of the specified resource. It corresponds to the read operation, fetching data without modifying it.
- Example: Retrieving a list of users, fetching a specific document, or querying a search.

- Code: response = requests.get(url)

3) Update

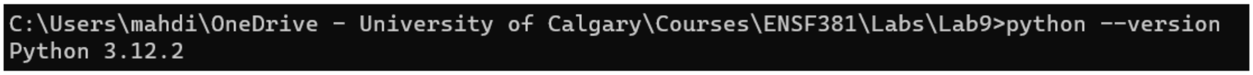
- HTTP Methods: PUT and PATCH
- PUT is used for updating a resource completely.
- Code: response = requests.put(url, json=updated_user_data)
- PATCH is used for making partial updates to an existing resource, altering only specified fields.
- Code: response = requests.patch(url, json=partial_update_data)
- Example: Updating a user's profile information (PUT) or changing just the user's email address (PATCH).

4) Delete

- HTTP Method: DELETE
- This method deletes the specified resource, corresponding directly to the delete operation in CRUD.
- Example: Removing a user's account, deleting a post or comment.
- Code: response = requests.delete(url)

3.6.1

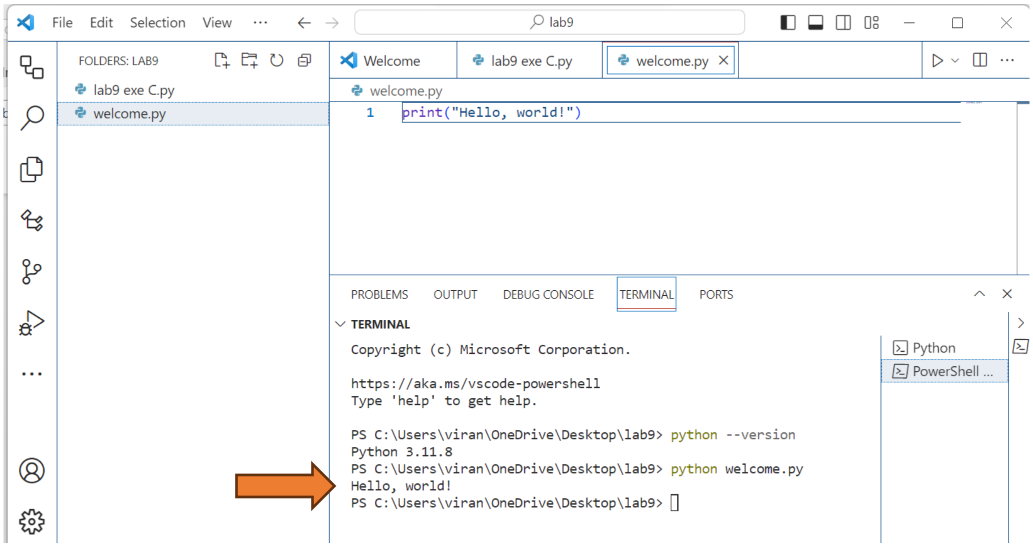
[5 marks, sample answer is here. The picture must show the python version.]



```
C:\Users\mahdi\OneDrive - University of Calgary\Courses\ENSF381\Labs\Lab9>python --version
Python 3.12.2
```

3.6.2

[5 marks, sample answer is here. The picture must show the Hello, world! terminal.]



```
print("Hello, world!")
```

```
Copyright (c) Microsoft Corporation.

https://aka.ms/vscode-powershell
Type 'help' to get help.

PS C:\Users\viran\OneDrive\Desktop\lab9> python --version
Python 3.11.8
PS C:\Users\viran\OneDrive\Desktop\lab9> python welcome.py
Hello, world!
PS C:\Users\viran\OneDrive\Desktop\lab9>
```

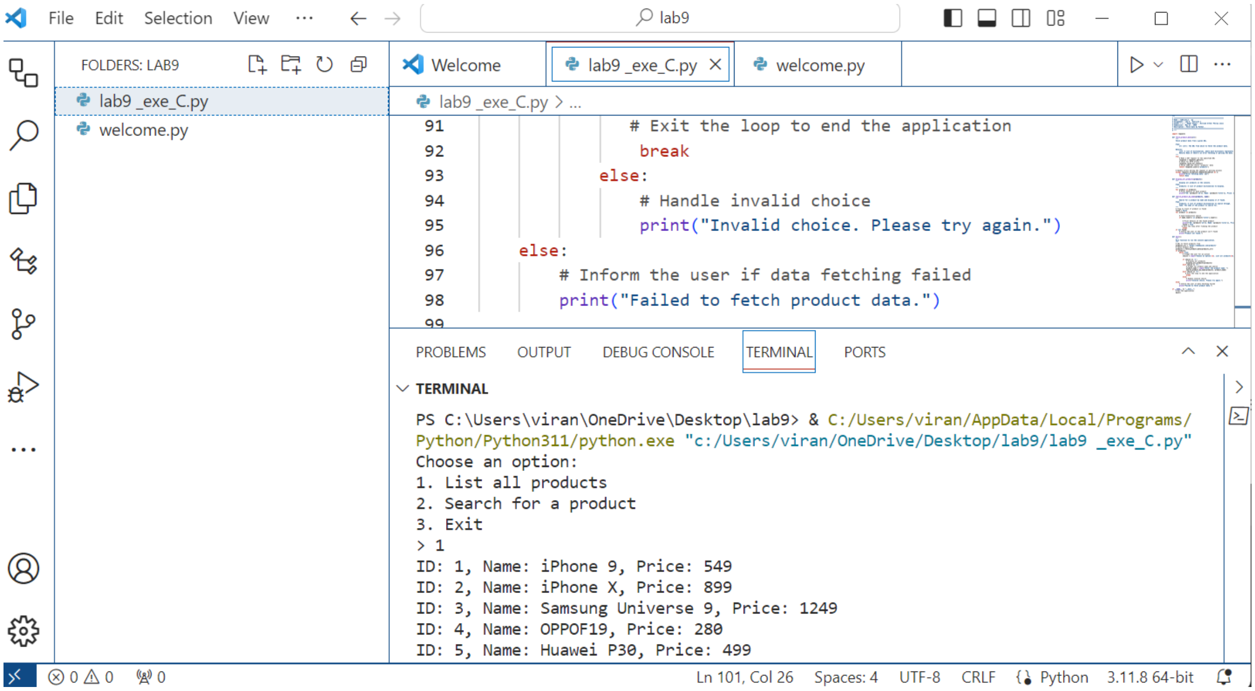
4.3.6.1

[20 marks, check their lab9_exe_C.py file, if they have provided a reasonable code then don't be rigid. If you suspect about their code, then go for running it and testing. They had not to provide their code here in this file.]

4.3.6.2

[5 marks, sample answer is here. Some pictures that show the application was working.]

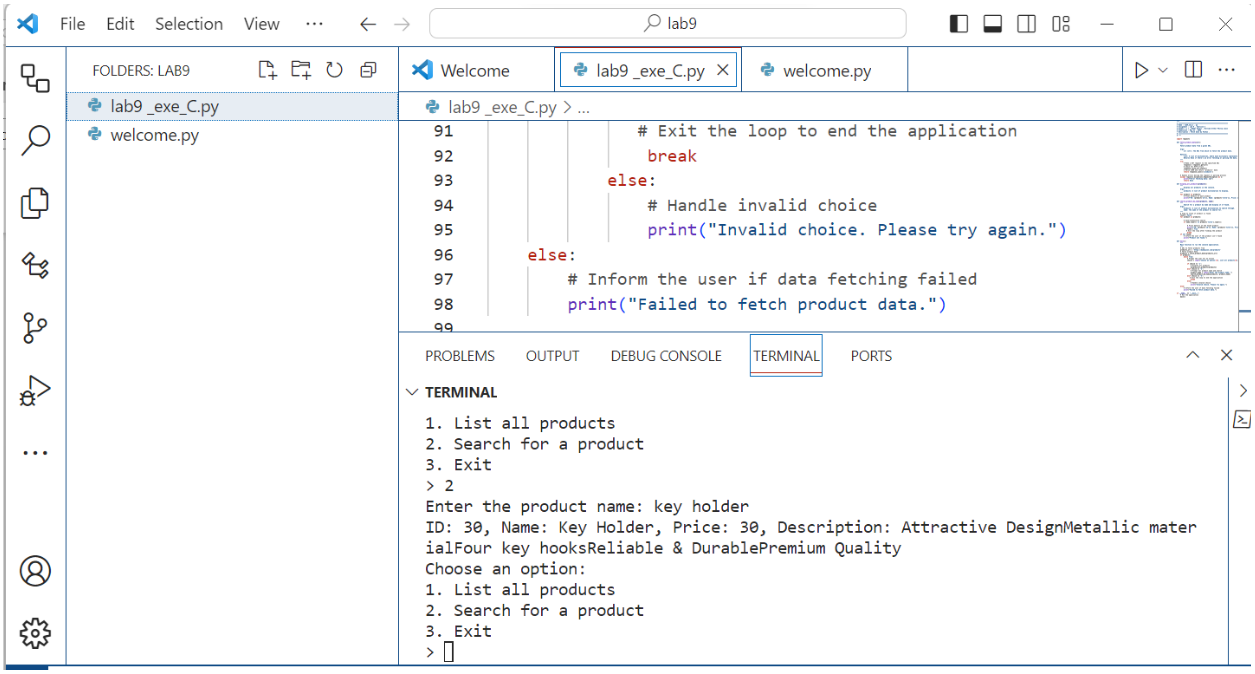
1. List of products



```
                    # Exit the loop to end the application
                    break
                else:
                    # Handle invalid choice
                    print("Invalid choice. Please try again.")
        else:
            # Inform the user if data fetching failed
            print("Failed to fetch product data.")
```

```
PS C:\Users\viran\OneDrive\Desktop\lab9> & C:/Users/viran/AppData/Local/Programs/
Python/Python311/python.exe "c:/Users/viran/OneDrive/Desktop/lab9/lab9 _exe_C.py"
Choose an option:
1. List all products
2. Search for a product
3. Exit
> 1
ID: 1, Name: iPhone 9, Price: 549
ID: 2, Name: iPhone X, Price: 899
ID: 3, Name: Samsung Universe 9, Price: 1249
ID: 4, Name: OPPOF19, Price: 280
ID: 5, Name: Huawei P30, Price: 499
```

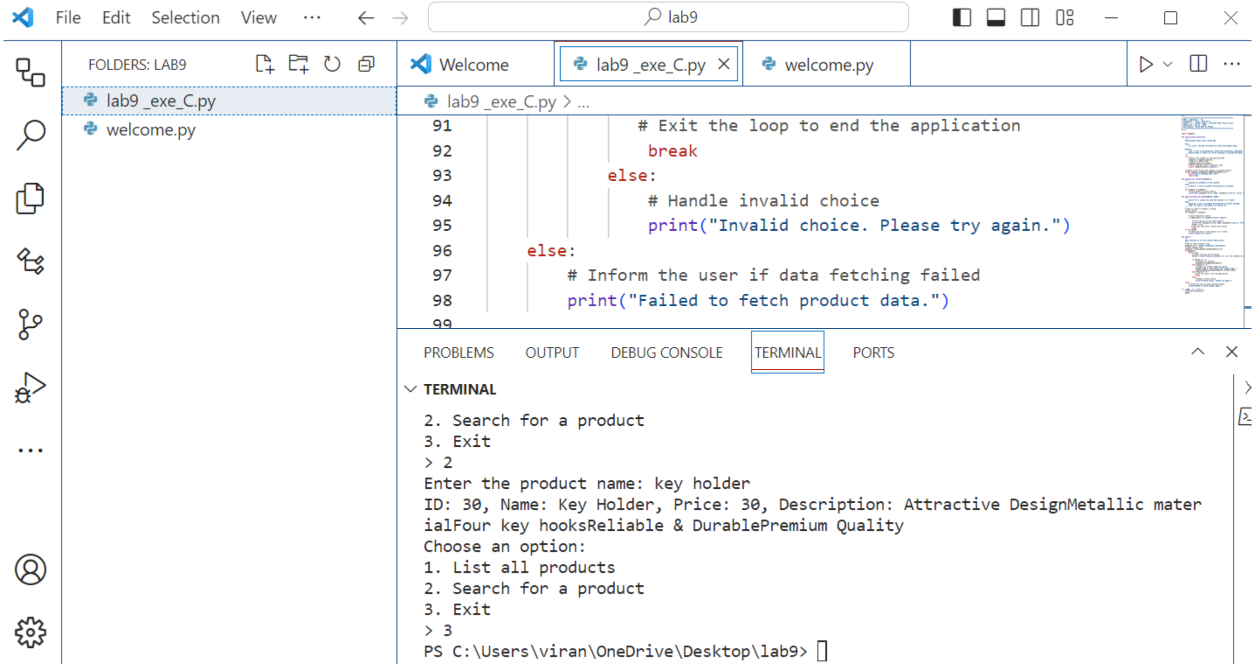
2. Search item by name



```python
                # Exit the loop to end the application
                break
            else:
                # Handle invalid choice
                print("Invalid choice. Please try again.")
    else:
        # Inform the user if data fetching failed
        print("Failed to fetch product data.")
```

```
1. List all products
2. Search for a product
3. Exit
> 2
Enter the product name: key holder
ID: 30, Name: Key Holder, Price: 30, Description: Attractive DesignMetallic mater
ialFour key hooksReliable & DurablePremium Quality
Choose an option:
1. List all products
2. Search for a product
3. Exit
> 
```

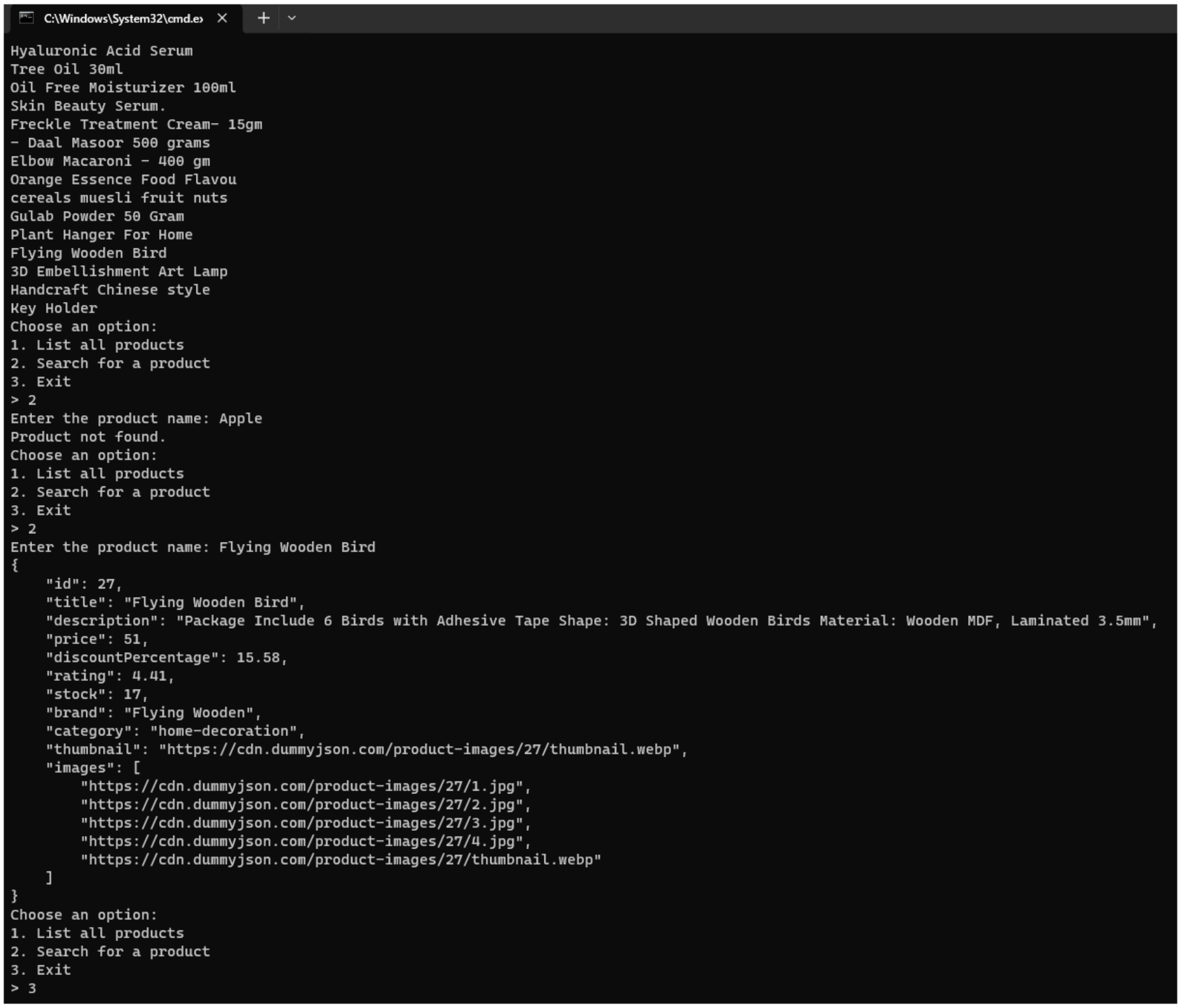
3. Exit from the loop



```python
                # Exit the loop to end the application
                break
            else:
                # Handle invalid choice
                print("Invalid choice. Please try again.")
    else:
        # Inform the user if data fetching failed
        print("Failed to fetch product data.")
```

```
2. Search for a product
3. Exit
> 2
Enter the product name: key holder
ID: 30, Name: Key Holder, Price: 30, Description: Attractive DesignMetallic mater
ialFour key hooksReliable & DurablePremium Quality
Choose an option:
1. List all products
2. Search for a product
3. Exit
> 3
PS C:\Users\viran\OneDrive\Desktop\lab9> 
```

Or:



```
Hyaluronic Acid Serum
Tree Oil 30ml
Oil Free Moisturizer 100ml
Skin Beauty Serum.
Freckle Treatment Cream- 15gm
- Daal Masoor 500 grams
Elbow Macaroni - 400 gm
Orange Essence Food Flavou
cereals muesli fruit nuts
Gulab Powder 50 Gram
Plant Hanger For Home
Flying Wooden Bird
3D Embellishment Art Lamp
Handcraft Chinese style
Key Holder
Choose an option:
1. List all products
2. Search for a product
3. Exit
> 2
Enter the product name: Apple
Product not found.
Choose an option:
1. List all products
2. Search for a product
3. Exit
> 2
Enter the product name: Flying Wooden Bird
{
    "id": 27,
    "title": "Flying Wooden Bird",
    "description": "Package Include 6 Birds with Adhesive Tape Shape: 3D Shaped Wooden Birds Material: Wooden MDF, Laminated 3.5mm",
    "price": 51,
    "discountPercentage": 15.58,
    "rating": 4.41,
    "stock": 17,
    "brand": "Flying Wooden",
    "category": "home-decoration",
    "thumbnail": "https://cdn.dummyjson.com/product-images/27/thumbnail.webp",
    "images": [
        "https://cdn.dummyjson.com/product-images/27/1.jpg",
        "https://cdn.dummyjson.com/product-images/27/2.jpg",
        "https://cdn.dummyjson.com/product-images/27/3.jpg",
        "https://cdn.dummyjson.com/product-images/27/4.jpg",
        "https://cdn.dummyjson.com/product-images/27/thumbnail.webp"
    ]
}
Choose an option:
1. List all products
2. Search for a product
3. Exit
> 3
```