

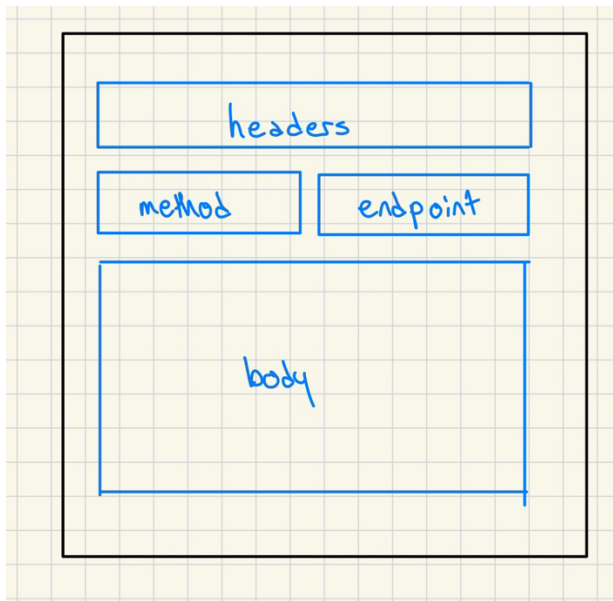
ENSF381 – Lab09

Section: L02

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2.1.1



Components within the HTTP request:

The **headers** will contain information related to the authentication data, the type of browser used, and the types of responses that will be accepted. This is generally just additional information about the request.

The **methods** will indicate what type of HTTP method is used from the options of GET (to get a resource), POST (to send data to a server), PUT (to update an existing resource), and DELETE (to remove and existing resource).

The **endpoint** will be the URL of the API endpoint that is used.

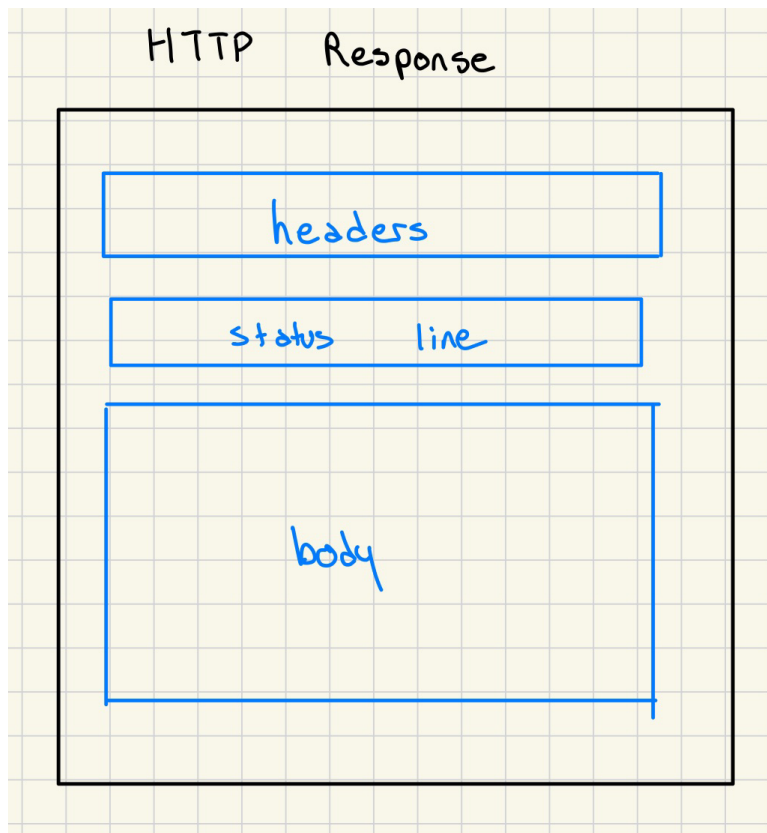
The **body** will contain the data that that gets sent to the server. Since this data gets sent to the server, a body is most common with the PUT and POST requests.

Reference: the basis of the diagram and some of the description was from the lecture slides, specifically week 9, lecture 1, slide 9. Link to the slide:

<https://d2l.ucalgary.ca/d2l/le/content/569861/viewContent/6377048/View> (it may not show)

Additional information was retrieved from: <https://developer.mozilla.org/en-US/docs/Web/HTTP/Status>

2.1.2



Components of the HTTP response:

Status line: this is a single line within the response, and it includes 3 main components, the version, status code, and the reason phrase.

Version: this is contained within the status line. It indicates what version of the HTTP protocol is being used.

Status code: this is contained within the status line as well. It is 3 digits long and it represents the response's outcome. The status code is most often 200 for okay, 404 for not found, and 500 for an internal server error.

Reason phrase: this is within the status code and is a simple text explanation of the status code.

Headers: this contains information that describes the response. It includes the format of the data being sent, the size of the body in bytes, the length of the content, server type, etc.

Body: this contains the data of the response which is what was requested. It can be text, binary file, or a sequence of bytes

Standard HTTP status codes

1xx information – these are codes that indicate that the request was received and the process of executing the request is in process:

1. **100** is for continue: it is an interim process response that indicates the client should continue the request or ignore the response if the request is done.
2. **101** is for switching protocols: this is the response to an upgrade request and indicates the protocol the server is switching to.
3. **102** is for processing: this shows that the server is processing the a request for the response is not available at the moment

2xx success – these are codes that indicate that the request was received, understood, and accepted:

1. **201** is for created: it means that the request succeeded and a new resource is created as a result of the request. Often this appears after POST or PUT requests
2. **202** is for accepted: this indicates that the request has been received but the request has not been acted upon yet. This is noncommittal since there is no way to later send a response indicating the outcome of the request.
3. **204** is for no content: This is for when there is no content to send for the given request but the headers may be useful.

3xx redirection – these are codes that indicate that in order to complete the request, further action is needed:

1. **303** is for See Other: this means that the server has sent this response to tell the client to get the response from another URI with a get request
2. **304** is for not modified: this is for caching purposes, telling the client that the response can use the same cached version of the response.
3. **301** is for moved permanently: this indicates that the url for the requested resources has changed and the new url is given in the response.

4xx client error – these are codes that indicate to the client that there is an error within the request in terms of syntax, or that it cannot be fulfilled:

1. **401** is for unauthorized: this means that the request is unauthenticated so the client must authenticate itself to get the requested response.
2. **403** is for forbidden: it means that client does not have access to the content so the server cannot give the requested resources.
3. **405** is for method not allowed: this means that the request method is known by the server but is unsupported for the target resources

5xx server error - these are code that indicate that the server failed to execute/fulfill a valid request:

1. **500** is for internal server error: this means that the server has encountered a situation, but it does not know how to handle it.
2. **502** is for bad gateway: means this means that the server got an invalid response when working as a gateway to get a response to handle the request

3. **504** is for gateway timeout: this means that the server could not produce a response to the request in time when the server is acting as a gateway.

Reference: information was from the lecture slides, specifically week 9, lecture 1, slide 18. Link to the slide: <https://d2l.ucalgary.ca/d2l/le/content/569861/viewContent/6377048/View> (it may not show)

Additional information was retrieved from;

https://www3.ntu.edu.sg/home/ehchua/programming/webprogramming/HTTP_Basics.html

<https://textbooks.cs.ksu.edu/cis526/02-http/08-response-format/index.html>

<https://developer.mozilla.org/en-US/docs/Web/HTTP/Overview>

<https://developer.mozilla.org/en-US/docs/Web/HTTP/Status>

https://en.wikipedia.org/wiki/List_of_HTTP_status_codes

2.1.3

Create: this adds a new database record, similar to the SQL operation of insert. This is also similar to the http method of POST

Read: this retrieves records from a database table based on search criteria. It fetches data without modifying it. This is similar to the SQL operation of select. It can return a subset of records and fields depending on the query. This is also similar to the method of GET in http

Update: this changes existing records in a database this is similar to the SQL operation of update. It can read and affect all of a subset of records. This is also similar to the function of PUT and PATCH from https

Delete: this removes records from the database similar to the delete operation in SQL. This is also similar to the function DELETE from https.

3.6.1

```
● (base) stephenieoboh@stephenies-mbp ~ % python --version
Python 3.9.12
○ (base) stephenieoboh@stephenies-mbp ~ %
```

3.6.2

```
/usr/bin/python3 /Users/stephenieoboh/Desktop/tester.py
● (base) stephenieoboh@stephenies-mbp ~ % /usr/bin/python3 /Us
ers/stephenieoboh/Desktop/tester.py
Hello, world!
```

4.3.6.2

```
Choose an option:
1. List all products
2. Search for a product
3. Exit
> 1
List of all products:
iPhone 9
iPhone X
Samsung Universe 9
OPPOF19
Huawei P30
MacBook Pro
Samsung Galaxy Book
Microsoft Surface Laptop 4
Infinix INB00K
HP Pavilion 15-DK1056WM
perfume Oil
Brown Perfume
Fog Scent Xpressio Perfume
Non-Alcoholic Concentrated Perfume Oil
Eau De Perfume Spray
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: hyaluronic acid serum
Product details:
{
  "id": 16,
  "title": "Hyaluronic Acid Serum",
  "description": "L'Or\u00c3\u00a9al Paris introduces Hyaluron Expert Replumping Serum formulated with 1.5% Hyaluronic Acid",
  "price": 19,
  "discountPercentage": 13.31,
  "rating": 4.83,
  "stock": 110,
  "brand": "L'Oreal Paris",
  "category": "skincare",
  "thumbnail": "https://cdn.dummyjson.com/product-images/16/thumbnail.jpg",
  "images": [
    "https://cdn.dummyjson.com/product-images/16/1.png",
    "https://cdn.dummyjson.com/product-images/16/2.webp",
    "https://cdn.dummyjson.com/product-images/16/3.jpg",
    "https://cdn.dummyjson.com/product-images/16/4.jpg",
    "https://cdn.dummyjson.com/product-images/16/thumbnail.jpg"
  ]
}

Choose an option:
1. List all products
2. Search for a product
3. Exit
> □
```

```
Choose an option:
1. List all products
2. Search for a product
3. Exit
> 2
Enter the product name: apple
Product details:
Product not found.
```

```
Choose an option:
1. List all products
2. Search for a product
3. Exit
> █
```

```
Choose an option:
1. List all products
2. Search for a product
3. Exit
> 3
○ (base) stephenieoboh@stephenies-mbp Lab9 % █
```

```
warning:warnin
Choose an option:
1. List all products
2. Search for a product
3. Exit
> 6
Invalid choice. Please try again.
```

```
Choose an option:
1. List all products
2. Search for a product
3. Exit
> █
```