Lesson 1: What is a server?

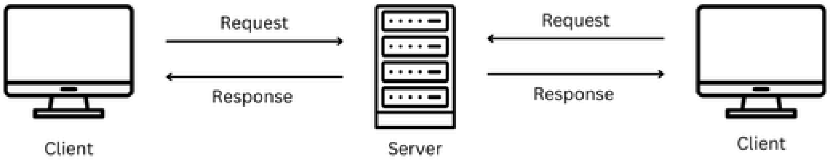
1. How does a server differ from your local computer?

A server is a powerful computer designed to provide services to other computers, called clients, over a network. It’s meant to handle requests, manage resources, and stay on almost 24/7.

A local computer is built for individual use, a server is designed to support many users at once, have high reliability, and use specialized hardware to manage multiple tasks efficiently.

Local computers are used for personal tasks, while servers are usually dedicated to running applications, storing data, hosting websites, or managing emails for multiple users.

2. Draw and explain the client-server architecture.



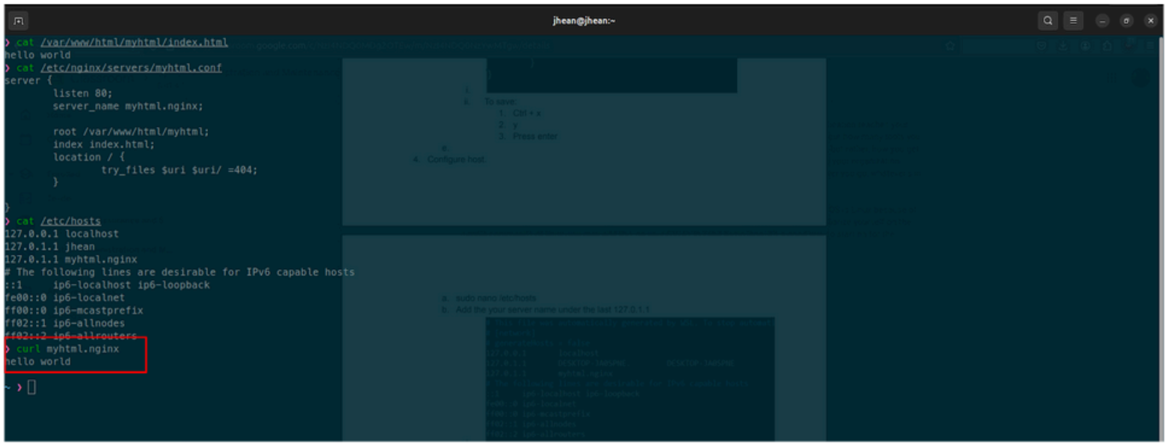
The client-server architecture is a network model that shows how clients connect to central servers to access resources or services. Clients request services or data, and the server responds by providing the data that the client requests. This setup allows multiple clients to access centralized resources or applications hosted on the server.

Lesson 4: Linux

What are the challenges you have encountered in following the given documentation?

For me, I had to do an extra step which is to include the directory of *\/etc/nginx/servers/*.conf;* to the nginx.conf file.

Post a screenshot when you do *curl* of your own html.

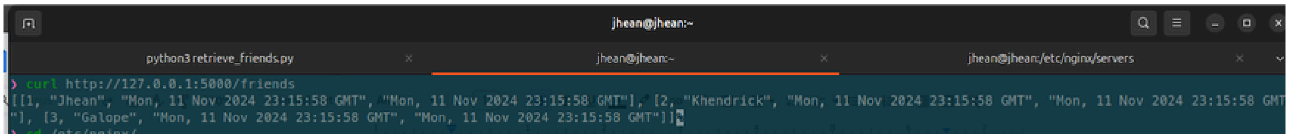


```
❯ cat /var/www/html/myhtml/index.html
hello world
❯ cat /etc/nginx/servers/myhtml.conf
server {
        listen 80;
        server_name myhtml.nginx;

        root /var/www/html/myhtml;
        index index.html;
        location / {
                try_files $uri $uri/ =404;
        }

}
❯ cat /etc/hosts
127.0.0.1 localhost
127.0.1.1 jhean
127.0.1.1 myhtml.nginx
# The following lines are desirable for IPv6 capable hosts
::1     ip6-localhost ip6-loopback
fe00::0 ip6-localnet
ff00::0 ip6-mcastprefix
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
❯ curl myhtml.nginx
hello world

~ ❯ 
```

Lesson 5: Requirement 1

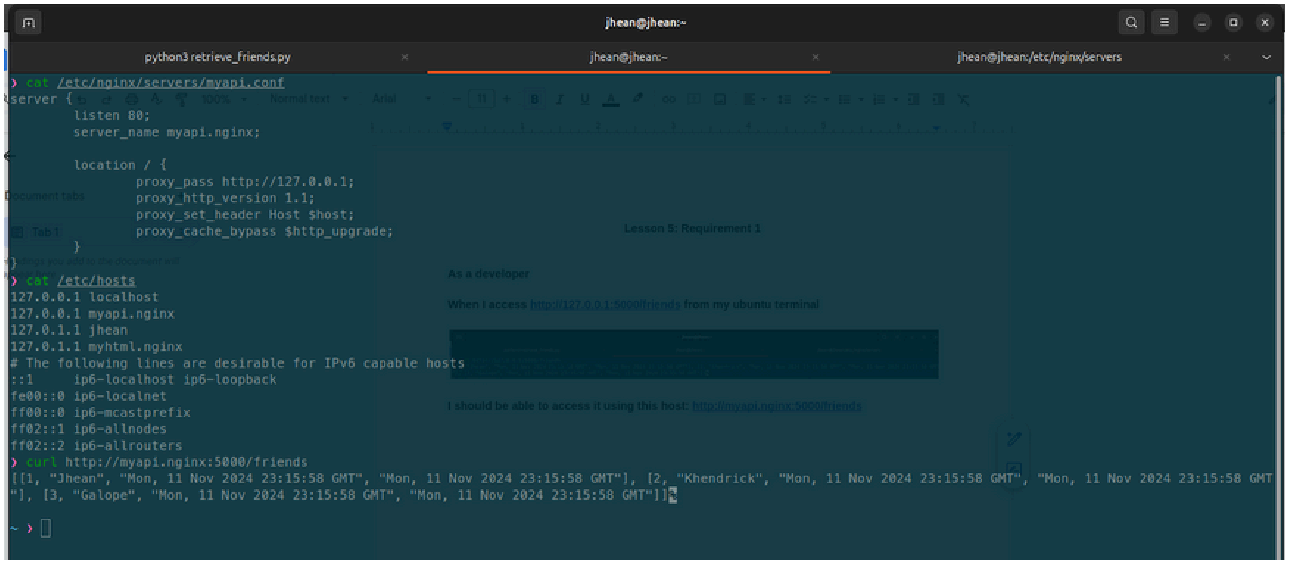
As a developer

When I access http://127.0.0.1:5000/friends from my ubuntu terminal



```
❯ curl http://127.0.0.1:5000/friends
[[1, "Jhean", "Mon, 11 Nov 2024 23:15:58 GMT", "Mon, 11 Nov 2024 23:15:58 GMT"], [2, "Khendrick", "Mon, 11 Nov 2024 23:15:58 GMT", "Mon, 11 Nov 2024 23:15:58 GMT
"], [3, "Galope", "Mon, 11 Nov 2024 23:15:58 GMT", "Mon, 11 Nov 2024 23:15:58 GMT"]]
```

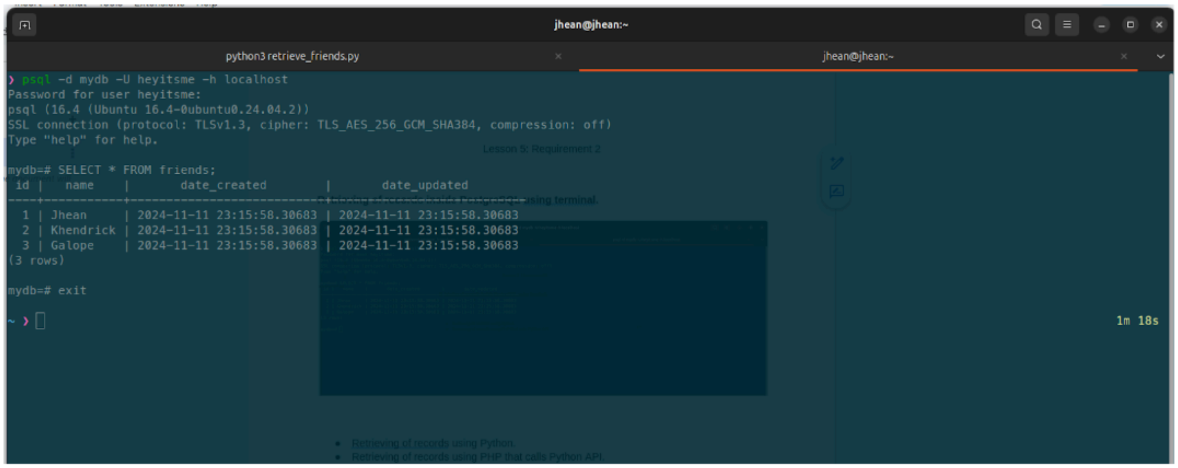
I should be able to access it using this host: http://myapi.nginx:5000/friends



```
❯ cat /etc/nginx/servers/myapi.conf
server {
        listen 80;
        server_name myapi.nginx;

        location / {
                proxy_pass http://127.0.0.1;
                proxy_http_version 1.1;
                proxy_set_header Host $host;
                proxy_cache_bypass $http_upgrade;
        }
}
❯ cat /etc/hosts
127.0.0.1 localhost
127.0.0.1 myapi.nginx
127.0.1.1 jhean
127.0.1.1 myhtml.nginx
# The following lines are desirable for IPv6 capable hosts
::1     ip6-localhost ip6-loopback
fe00::0 ip6-localnet
ff00::0 ip6-mcastprefix
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
❯ curl http://myapi.nginx:5000/friends
[[1, "Jhean", "Mon, 11 Nov 2024 23:15:58 GMT", "Mon, 11 Nov 2024 23:15:58 GMT"], [2, "Khendrick", "Mon, 11 Nov 2024 23:15:58 GMT", "Mon, 11 Nov 2024 23:15:58 GMT
"], [3, "Galope", "Mon, 11 Nov 2024 23:15:58 GMT", "Mon, 11 Nov 2024 23:15:58 GMT"]]

~ ❯
```

Lesson 5: Requirement 2

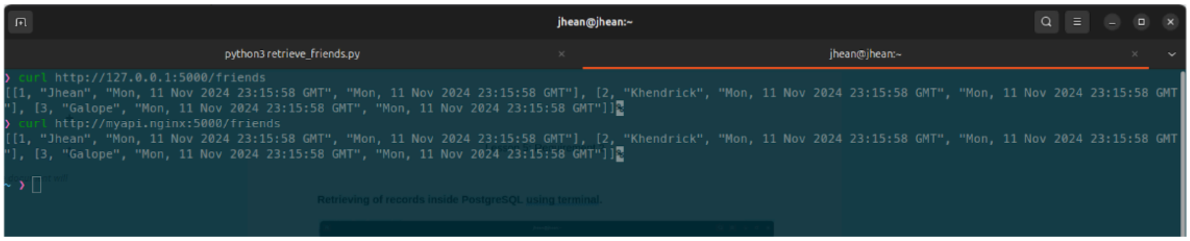
Retrieving of records inside PostgreSQL using terminal.



```
❯ psql -d mydb -U heyitsme -h localhost
Password for user heyitsme:
psql (16.4 (Ubuntu 16.4-0ubuntu0.24.04.2))
SSL connection (protocol: TLSv1.3, cipher: TLS_AES_256_GCM_SHA384, compression: off)
Type "help" for help.

mydb=# SELECT * FROM friends;
 id |   name    |       date_created        |       date_updated
----+-----------+---------------------------+---------------------------
  1 | Jhean     | 2024-11-11 23:15:58.30683 | 2024-11-11 23:15:58.30683
  2 | Khendrick | 2024-11-11 23:15:58.30683 | 2024-11-11 23:15:58.30683
  3 | Galope    | 2024-11-11 23:15:58.30683 | 2024-11-11 23:15:58.30683
(3 rows)

mydb=# exit

~ ❯                                                                          1m 18s
```

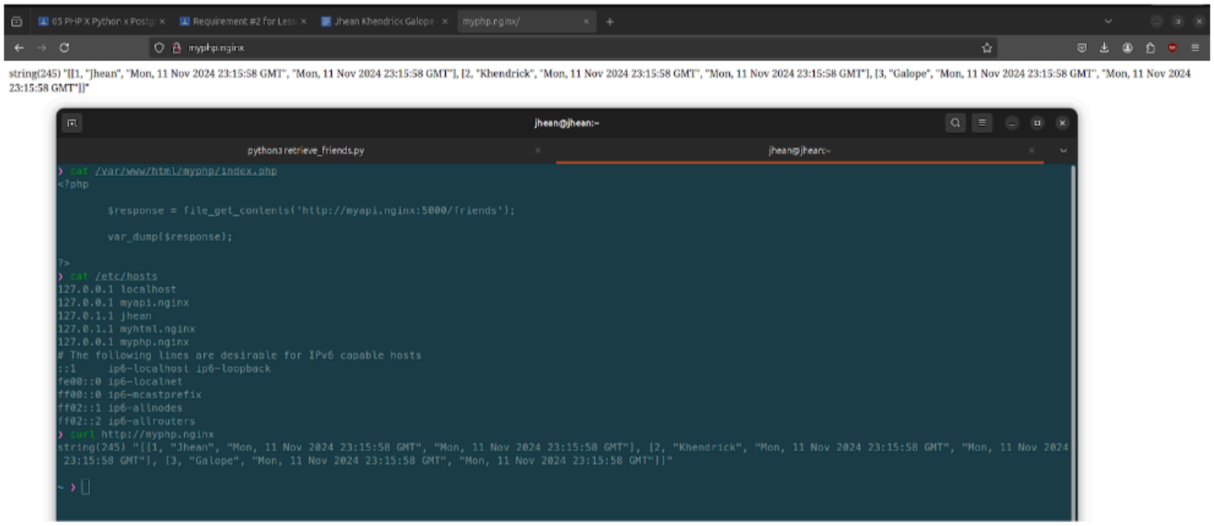
Retrieving records using Python.

VIA FLASK API:



```
❯ curl http://127.0.0.1:5000/friends
[[1, "Jhean", "Mon, 11 Nov 2024 23:15:58 GMT", "Mon, 11 Nov 2024 23:15:58 GMT"], [2, "Khendrick", "Mon, 11 Nov 2024 23:15:58 GMT", "Mon, 11 Nov 2024 23:15:58 GMT
"], [3, "Galope", "Mon, 11 Nov 2024 23:15:58 GMT", "Mon, 11 Nov 2024 23:15:58 GMT"]]%
❯ curl http://myapi.nginx:5000/friends
[[1, "Jhean", "Mon, 11 Nov 2024 23:15:58 GMT", "Mon, 11 Nov 2024 23:15:58 GMT"], [2, "Khendrick", "Mon, 11 Nov 2024 23:15:58 GMT", "Mon, 11 Nov 2024 23:15:58 GMT
"], [3, "Galope", "Mon, 11 Nov 2024 23:15:58 GMT", "Mon, 11 Nov 2024 23:15:58 GMT"]]%

~ ❯
```

Retrieving of records using PHP that calls Python API.



```
string(245) "[[1, "Jhean", "Mon, 11 Nov 2024 23:15:58 GMT", "Mon, 11 Nov 2024 23:15:58 GMT"], [2, "Khendrick", "Mon, 11 Nov 2024 23:15:58 GMT", "Mon, 11 Nov 2024 23:15:58 GMT"], [3, "Galope", "Mon, 11 Nov 2024 23:15:58 GMT", "Mon, 11 Nov 2024
23:15:58 GMT"]]"
```

```
❯ cat /var/www/html/myphp/index.php
<?php

        $response = file_get_contents('http://myapi.nginx:5000/friends');

        var_dump($response);

?>
❯ cat /etc/hosts
127.0.0.1 localhost
127.0.0.1 myapi.nginx
127.0.1.1 jhean
127.0.1.1 myhtml.nginx
127.0.0.1 myphp.nginx
# The following lines are desirable for IPv6 capable hosts
::1     ip6-localhost ip6-loopback
fe00::0 ip6-localnet
ff00::0 ip6-mcastprefix
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
❯ curl http://myphp.nginx
string(245) "[[1, "Jhean", "Mon, 11 Nov 2024 23:15:58 GMT", "Mon, 11 Nov 2024 23:15:58 GMT"], [2, "Khendrick", "Mon, 11 Nov 2024 23:15:58 GMT", "Mon, 11 Nov 2024
 23:15:58 GMT"], [3, "Galope", "Mon, 11 Nov 2024 23:15:58 GMT", "Mon, 11 Nov 2024 23:15:58 GMT"]]"

~ ❯ 
```