

# ***ALX PROJECT***

## ***WEB INFRASTRUCTURE DESIGN***

Task 0 :

### Explanation of concepts :

- **What is a server :** A server is a computer or a system that provides resources, data, services, or programs to other computers, known as clients, over a network.
- **What is the role of the domain name:** The domain name serves as a fundamental component of the internet infrastructure, enabling users to access websites and online services in a user-friendly and organized manner.
- **What type of DNS record `www` is in `www.foobar.com` :** `www` is a CNAME(Canonical Name) DNS record-type in `www.foobar.com` since it also points to the same IP address as `foobar.com` and if the IP address changes we can only record changes in the DNS A record of `foobar.com`.
- **What is the role of the web server :** the web server acts as the gateway between clients and the web application or website hosted on the server, handling incoming requests, serving content, generating dynamic responses, and ensuring secure and efficient communication over the internet
- **What is the role of the application server:** the application server acts as the computational engine of the web application, orchestrating the processing, manipulation, and presentation of dynamic content to users while ensuring reliability, scalability, and security in the delivery of web services.
- **What is the role of the database:** the database serves as a critical component of web applications, facilitating data storage, retrieval, manipulation, and management while ensuring data integrity, security, and reliability throughout the application lifecycle.

- **What is the server using to communicate with the computer of the user requesting the website:** the server communicates with the user's computer using the HTTP protocol to handle requests, process data, and deliver content over the internet, enabling the interaction between the client (user's browser) and the server-side components of web applications

### Issues That Can Affect A Simple Web Stack:

**i. SPOF**

SPOF stands for Single Point of Failure. In the context of web infrastructure, a Single Point of Failure refers to any component or part of the system that, if it fails, will cause the entire system to fail or become unavailable

**ii. Downtime when maintenance needed (like deploying new code web server needs to be restarted)**

The Infrastructure above, downtime will occur because we only have one server and one database, that is used to make the deployment and maintenance hence no way users will access the website in that period

**iii. Cannot scale if too much incoming traffic**

When a web infrastructure cannot scale to handle a surge in incoming traffic, it can lead to degraded performance or even complete unavailability of the website or application