**DevOps Assignment 2**

1. Describe Hub, Switch and Router:

* Hub: This is a device that splits network connection into multiple computers.
* Switch: This allows devices on a network to communicate with each other as well as with other networks.
* Router: This helps me to connect with multiple networks i.e to share a single internet connection with multiple devices.

1. What is the OSI model?

OSI (Open Systems Interconnection) model is a reference model which allows you to specify standards for communication.

1. Explain the different layers of the OSI model.

* Physical Layer: This represents the electrical and physical representation of the system, which includes cable, layout pins etc.
* Data Link: This provides node-to-node data transfer and also handles error correction from the physical layer.
* Network: This is responsible for packet forwarding, including routing through different routers.
* Transport: This deals with the coordination of data transfer between end systems and hosts i.e how much data to send, at what rate, where it goes etc.
* Session: Functions at this layer involves setup, coordination(how long should a system wait for a response) and termination between the applications at each end of the session.
* Presentation: It represents the preparation or translation of application format i.e it presents data for the application or the network.
* Application: This receives information directly from the end users and displays incoming data to the user.

1. What do you mean by the TCP/IP Model?

TCP/IP Model stands for TCP/IP stands for Transmission Control Protocol/Internet Protocol. TCP/IP is a set of standardized rules that allow computers to communicate on a network such as the internet. TCP/IP protocol suite functions as an abstraction layer between internet applications and the routing and switching fabric.

1. What do you mean by HTTP, TCP and UDP

* HTTP: The Hypertext Transfer Protocol (HTTP) is the foundation of the World Wide Web, and is used to load webpages using hypertext links. HTTP is an [application layer](https://www.cloudflare.com/learning/ddos/application-layer-ddos-attack/) protocol designed to transfer information between networked devices and runs on top of other layers of the network [protocol](https://www.cloudflare.com/learning/network-layer/what-is-a-protocol/) stack. A typical flow over HTTP involves a client machine making a request to a server, which then sends a response message.
* TCP: Transmission Control protocol lies between the Application and Network Layers which are used in providing reliable delivery services. It is a connection-oriented protocol for communications that helps in the exchange of messages between different devices over a network.
* UDP: The User Datagram Protocol, or UDP, is a communication protocol used across the Internet for especially time-sensitive transmissions such as [video playback](https://www.cloudflare.com/learning/video/what-is-streaming/) or [DNS](https://www.cloudflare.com/learning/dns/what-is-dns/) lookups. It speeds up communications by not formally establishing a connection before data is transferred. This allows data to be transferred very quickly

1. What is a Firewall?

A Firewall is a network security device that monitors and filters incoming and outgoing network traffic based on an organization’s previously established security policies.

1. Explain DNS

The Domain Name System is the phonebook of the Internet. The process of DNS resolution involves converting a hostname (such as www.example.com) into a computer-friendly IP address (such as 192.168.1.1). An IP address is given to each device on the Internet, and that address is necessary to find the appropriate Internet device - like a street address is used to find a particular home. When a user wants to load a webpage, a translation must occur between what a user types into their web browser (example.com) and the machine-friendly address necessary to locate the example.com webpage.

1. Define Latency

Latency is the literal time it takes for a packet of data to go from its origination and reach its destination.

1. Define caching

It’s the process of storing copies of files in a cache, or temporary storage location, so that they can be accessed more quickly.

1. Explain Wireless Access point

A Wireless Access Point (WAP) is a networking device that allows connecting the devices with the wired network.