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**[Year]**

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Module: LIPC 1264\_2223\_504

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This logbook documents the progress of developing a functional network for a company that is located in two sites A & B in 4 building and multiple departments and putting in consideration the network security using Cisco Packet Tracer. The logbook covers the progress and lessons learned, Lab Work and the project development stages for each week during this term.

**1st Week**

During the first week of the Security Ethics and Networking module, I focused on understanding the importance of IP addresses and their role in network communication. I learned about the purpose of IP addresses and how they uniquely identify devices on a network. Additionally, I explored the concept of IP address classes and their specific ranges. Regarding the outcome I came up for the previous basic networking terms is as follows:

We use IP addresses to uniquely identify devices on a network and enable communication between them.

An IP address represents the numerical label assigned to a device, allowing it to be identified and located on a network.

IP address classes are ranges of IP addresses that are grouped based on the number of network and host bits, providing flexibility in addressing different network sizes.

The purpose of a subnet mask is to determine the network and host portions of an IP address, allowing for efficient routing and communication within a network.

**2nd - 5th Week**

In the second week till the 5th Week, the coursework project took canter stage. The main task was to plan and design the network topology, but I had to make my own topology. This involved selecting an appropriate network addresses and determining the number of hosts required.

I also considered different types of network transmission, the necessary devices that must be used to ensure the functionality of the network and how the project is relate to the OSI reference model. The network was basically to develop a company network that is located in two different sites and has multiple buildings and departments.

I have started by creating the most suitable network topology based on the devices that was introduces during the lab sessions. First of all, I have started by dropping devices for each as follows:

* Tow routers to enable the communicating between the two sites.
* A switch for each building.
* 5 Computers and a printer for each department.
* A Server in the IT.

Please find an attached File for the initial topology here:

A diagram of a computer network

Description automatically generated with low confidence

**6th - 7th Week**

After defining the most suitable network topology and linking the devices with the right cablings, the configuration stage was the next stage, the configurations was as follows:

Site A:

Building 1 Switch 1

* Management : 192.168.10.1/24
* Financial: 192.168.20.1/24
* Human-Resource: 192.168.30.1/24

Building 2 Switch 2

* IT: 192.168.40.1/24

Building 3 Switch 3

* Customer-Support: 192.168.50.1/24

Site B:

Building 4 Switch 4

* Marketing: 192.168.60.1/24
* Sales: 192.168.70.1/24
* Advertising: 192.168.80.1/24

Router 1:  
  
Se 0/3/0 : 128.0.0.1

Router 2:  
  
Se 0/3/0 : 10.0.0.2

**8th Week**

After configuring the vlans, sub vlans was needed to be created in both routers to enable routing and communication between vlans. Some problems occurred in the testing stage the routing between the two site and the vlans and disabled.  
  
The routing problem was fixed by changing the routers configuration as follows:

Router 1:  
  
Se 0/3/0 : 128.0.0.1

Router 2:  
  
Se 0/3/0 : 128.0.0.2

Besides that, I had to add an extras router to avoid separating building one form other networks. Please find a screen shot for the final topology bellow:

A screenshot of a computer network

Description automatically generated with low confidence

**Reflection & Conclusion**

Overall, this project allowed me to apply theoretical concepts to a practical scenario, strengthening my understanding of networking principles and reinforcing the importance of careful planning and configuration. The final topology showcases the successful implementation of the network design, providing a solid foundation for future network management endeavours, however the network security was fully meet the requirements as the configuration wasn’t properly conducted. This will be considered as future challenge for the future projects.

Note: To access the final version of the project, the project can be downloaded from this link:

[SEN-Sellam-Mohamed-Mehdi-Project](file:///G:\Term%202%20assessmants%20files\SEN-Sellam-Mohamed-Mehdi-Project\SEN-Sellam-Mohamed-Mehdi-Project\Cisco-Project.pkt)