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GROUP ASSIGNMENT

(INDIVIDUAL WORK)

CT043-3-1- IN

INTRODUCTION TO NETWORKING

HAND OUT DATE: 2ND WEEK

HAND IN DATE: 12TH WEEK

INTAKE CODE: APD1F2209CS(CYB)

MODULE CODE: CT034-3-1- IN

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TP-NUMBER: TP071012

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**1.0 INTRODUCTION**

A network is a collection of laptops, computers, and other electronic devices that are linked together via a cable or wireless connection to share information and carry out certain tasks. Every company has its own network, hence a local area network is created.

Computers and other electronic devices that are joined together form a local area network (LAN). A LAN network can support a single device in a modest home network up to hundreds of devices in a large business (company), or academic setting (Clark et al., 1978).

A local area network (LAN) allows devices such as computers and printers to be shared among users within a small zone, such as a building or group of buildings. For example, two employees in the same department can quickly exchange data by sending it to the server and back to their individual computers. LANs are particularly useful in settings where multiple users need to access shared resources within a specific location (Chriswoodford,2008).

**1.1 OBJECTIVES**

VanTech is a premier enterprise software company. The chief executive officer of VanTech, made the decision to grow the business and establish a new branch in CYBERJAYA on the city's technical side. By doing so, the CEO hoped to create a stimulating atmosphere in which to further the company's growth. Consequently, the objective is to meet the needs of both branches and create a solid network infrastructure. The company develops software for numerous other businesses, so the data must be well protected, otherwise, if someone gains access to the company's database, it will result in a significant loss for the business. For this reason, the company must be given a well-secured network that is under administration control.

VanTech is a renowned software firm, and it will use computerized equipment like laptops, server, and computers to carry out its operations. To transmit data between computers and do their task effectively, both buildings must be linked, either wirelessly or through a cable connection. Additionally, a reliable, consistent WI-FI connection must be provided readily using either personal or business devices.

The objective is to give the organization a solid network infrastructure to enhance the efficiency of data and information transfer between employees' devices and corporate server. Accordingly, a decent floor plan and an appropriate network diagram will be created for both branches based on the needs of the CEO and the staff. a nice setting where everyone can grow intellectually, think creatively, invent, and construct projects more quickly.

It is essential to create an effective floor layout and network diagram for the company (Van-Tech). Therefore, I'll be utilizing Draw.io to design the first floor of the Kuala Lumpur branch, which is more focused on the company's research and development. After being linked to the building's main router, all of the first level's departments will be able to readily interact with the second floor and the Cyberjaya branch.

**1.2 ASSUMPTION**

Kuala Lumpur branch (first floor): the first level of the Kuala Lumpur building houses the waiting room, reception area, cafeteria, server room, and internet and CCTV monitor room, the first floor of the KL block is dedicated to customer reception, it is clear from the scenario that by waiting area, reception area, and cafeteria.

All these 5 rooms will be connected to the network and will be supported by wireless internet connections for the customers and employees who may need to send important information from one end device to another. The network will provide the ability for smartphones to connect. The floor will be designed to be more comfortable and effective. On this floor, there will be 2 laptops, 4 PCs, 2 printers, 4 IP phones,6 CCTV cameras, one route for the entire block, 2 switches both are directly connected to the router, and a server, and the smoke detectors and fire sprinklers for the safety, one speaker, RFIDs for the important rooms, five TVs, 2 coffee machines and a humidifier, one access point.

Three employees are hired to receptionist the customers and to receive their orders. And two workers specialized in the cafeteria. Finally, four people are employed to work on the internet and CCTV monitor room. The floor dimensions are Length = 80 m and width = 100 m.

**2.0 FLOOR PLAN**

Diagram

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Figure 1: Floor plan (KUALA LUMPUR FIRST FLOOR)

**2.1 FLOOR PLAN JUSTIFICATION**

The first floor in the K.L. branch contains five rooms (areas) which are the waiting area, server room, internet and CCTV monitors, cafeteria, and the reception area.

There are two options to go to the second floor: first by using the elevator at the right-hand corner of the first floor, and second, by utilizing the stairs, staircase for when the elevator is out of use due to emergencies or maintenance. Next to the cafeteria are two toilets that are accessible to both clients and employees of the two genders.

The **reception area** is an important part of any business or organization. It is the first point of contact for visitors and clients, and it can have a big impact on their first impression of the company. The reception area is designed to can make visitors feel welcome and comfortable, and can help to create a positive image of the company. It is also a functional space where visitors can check-in, and get information. In short, the reception area plays a crucial role in creating a positive and professional image for the company. I've installed two PCs, two IP phones, and a printer for printing documents and receipts.

The **waiting room** is a space where people can wait for appointments. It is typically located next to the reception area, and it is included seating, such as chairs or benches. A comfortable and welcoming waiting area can help to put visitors at ease and make them feel valued, and that's why I implement a TV to can enjoy watching while waiting, and the availability of a WI-FI connection.

A **server room** this room is designed to be secure and climate-controlled in order to protect the sensitive equipment and ensure that it is always running at optimal performance. I have implemented one server and two A/Cs. It is located at the end of the passage between the waiting area and the internet and CCTV monitor room.

The **internet and CCTV monitor** room is the place that controls the CCTVs and displays the live image of the floor on the screens it is also a sensitive place and needs to be secured, there are four TVs and two laptops, two PCs, two IP phones and one printer.

The **cafeteria** is known as the place where the clients and staff can have their meals and drink their coffee, there are two big tables each one of which can have 6 people, and two small ones that carry two individuals, it is positioned in the front of the waiting area and the reception area to be accessed easily.

**3.0 NETWORK DIAGRAM**

Diagram

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Figure 2: Network diagram (KUALA LUMPUR FIRST FLOOR)

Graphical user interface, calendar

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Figure 3: the legend of the network design.

**3.1 NETWORK DIAGRAM JUSTIFICATION**

On the first floor of Kuala Lumper, the network design consists of many end devices, there are 2 switches in my network diagram, allowing for future expansion and allowing for up to 23 devices to be connected at once per switch. Switches are simple to use because all the individual needs to do is connect one to the router or one of the switches, and it will automatically create a path between the router and any connected device. The router is in the server room. To protect the privacy of the customers, there are 6 CCTV cameras installed throughout the floor. The CCTV cameras are installed to maintain the safety of the employees and the floor as a whole and to ensure that no one is doing anything they are not supposed to be doing. They are installed to cover the entire floor with almost no blind spots. For the internet and CCTV room, there are two IP phones each one is connected to two interfaces to the switch, and to the PCs. And two IP phones in the reception area. The IP phones are set up to make sure that the employees can rapidly contact each other without having to leave their various workspaces. The reception area, cafeteria, internet, and CCTV monitor room have one A/C set for each of them. And two A/Cs for each of the server room and waiting area. In order to prevent the server room and other rooms from being either too hot or too cold for the clients and personnel, the A/Cs will keep the temperature of the rooms at 23 degrees Celsius. One printer is located in the lobby, while the other is in the room with the internet and CCTV monitors, and the printers are intended to print crucial documents that the employees need. There is an elevator for employees to use to travel between floors, and there is also one CCTV inside it. One access point will be the floor it is cover the entire floor for the wireless connections. And for safety situations, the smoke detectors are implemented in the areas that usually the client will be, in the reception area, waiting area, and cafeteria, and also three fire sprinklers are in three different rooms. One speaker is used in the waiting area in case the employee calls the client to come to the reception area. Most important is the RFID, two RFIDs are used for the important rooms (server room, internet and CCTV monitor). Two coffee machines are put into operation the people on the floor and one humidifier. There are 2 laptops and both of them are in the internet and CCTV monitor room. In the server room, there are two servers operating continuously. Last but not least, 4 TVs are included in the internet and CCTV minor and one TV in the waiting room.

**4.0 REFERENCES**

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