**Project 3**

**Hotel System Network Design and Implementation**

**Case Study and Requirements**

As a part of your end year networking project, you are required to design and implement Modern Hotel network. The hotel has three floors; in the first floor there three departments (Reception, store and Logistics), in the second floor there are three departments (Finance, HR and Sales/Marketing), while the third floor hosts the IT and Admin. Therefore, the following are part of the considerations during the design and implementation;

* There should be three routers connecting each floor (all placed in the server room in IT department).
* All routers should be connected to each other using serial DCE cable.
* The network between the routers should be 10.10.10.0/30,10.10.10.4/30 and 10.10.10.8/30.
* Each floor is expected to have one switch (placed in the respective floor).
* Each floor is expected to have WIFI networks connected to laptops and phones.
* Each department is expected to have a printer.
* Each department is expected to be in different VLAN with the following details;

**1st Floor**

1. **Reception**- VLAN 80, Network of 192.168.8.0/24
2. **Store**- VLAN 70, Network of 192.168.7.0/24
3. **Logistics**- VLAN 60, Network of 192.168.6.0/24

**2nd Floor**

1. Finance- VLAN 50, Network of 192.168.5.0/24
2. HR- VLAN 40, Network of 192.168.4.0/24
3. Sales- VLAN 30, Network of 192.168.3.0/24

**3rd Floor**

1. Admin- VLAN 20, Network of 192.168.2.0/24
2. IT- VLAN 10, Network of 192.168.1.0/24

* Use OSPF as the routing protocol to advertise routes.
* All devices in the network are expected to obtain IP address dynamically with their respective router configured as the DHCP server.
* All the devices in the network are expected to communicate with each other.
* Configure SSH in all the routers for remote login.
* In IT department, add PC called Test-PC to port fa0/1 and use it to test remote login.
* Configure port security to IT-dept switch to allow only Test-PC to access port fa0/1 (use sticky method to obtain mac-address with violation mode of shutdown.)

**Technologies Implemented**

* Creating a network topology using Cisco Packet Tracer.
* Hierarchical Network Design.
* Connecting Networking devices with Correct cabling.
* Creating VLANs and assigning ports VLAN numbers.
* Subnetting and IP Addressing.
* Configuring Inter-VLAN Routing (Router on a stick).
* Configuring DHCP Server (Router as the DHCP Server).
* Configuring SSH for secure Remote access.
* Configuring switchport security or Port-Security on the switches.
* Configuring WLAN or wireless network (Cisco Access Point).
* Host Device Configurations.
* Test and Verifying Network Communication.