

**SUBJECT:** CN LAB

**TASK-10**

**Submitted To:** Sir Rasikh

Section: 5A

**Submitted By:**

Aurang zaib (BSDS-002)

**Enterprise networking Project:**

Radeon Company Ltd. Is a US-owned company that deals with Banking and Insurance. The company is intending to expand its services across the African continent having the first branch to be located in Nairobi. Kenya. The company has secured a four-story building to operate within the Kenyan capital city. Therefore. The company would like to allow sourcing the knowledge from a group of final-year students from the local university to design and implement their company network. Assume you are among the students to take over this role, carefully read down the requirements, then model the design and implement the network based on the company’s needs. Each floor has departments as provided in the table below.

**First Floor**

|  |  |  |  |
| --- | --- | --- | --- |
| **No** | **Departments** | **No.of Pc** | **No.of printers** |
| 1 | Management | 20 | 4 |
| 2 | Research | 20 | 4 |
| 3 | Human resource | 20 | 4 |

**Second Floor**

|  |  |  |  |
| --- | --- | --- | --- |
| **No** | **Departments** | **No.of Pc** | **No.of printers** |
| 1 | Marketing | 20 | 4 |
| 2 | Accounting | 20 | 4 |
| 3 | Finance | 20 | 4 |

**Third Floor**

|  |  |  |  |
| --- | --- | --- | --- |
| **No** | **Departments** | **No.of Pc** | **No.of printers** |
| 1 | Logistics and store | 20 | 4 |
| 2 | Customer care | 20 | 4 |
| 3 | Guest area | 20 | 4 |

**Fourth Floor**

|  |  |  |  |
| --- | --- | --- | --- |
| **No** | **Departments** | **No.of Pc** | **No.of printers** |
| 1 | Administration | 20 | 2 |
| 2 | ICT | 20 | 2 |
| 3 | Server room | 2 admin PCs |  |

**Requirments:**

1. Use a software modeling tool to visualize the network topology

* Software Modelling Tools: MS Visio, Visual Paradigm, or Draw.io for modeling network design.

2. Use any of the following network simulation software to implement the above topology:

* Simulation software: Cisco Packet tracer or GNS3 for design and implementation.
* There should be one router on each floor. The router should be connecting switches on that floor.
* Use OSPF as the routing protocol to advertise routes.
* Each department is required to have a wireless network for the users.
* Each department except the server room will be anticipated to have around 60 users both wired and wireless users.
* Host devices in the network are required to obtain IPv4 addresses automatically.
* Devices in all the departments are required to communicate with each other.
* All devices in the network are expected to obtain an IP address dynamically from the dedicated DHCP servers located at the server room.
* Create HTTP. and E-mail servers
* Configure SSH in all the routers for remote login.

3. Use hierarchical network design with redundancy included:

* Having core, distribution, and access layers.

4. Configure the basic configuration of the devices:

* Hostnames
* Line Console and VTY passwords
* Banner messages
* Disable domain IP lookup

5. Each department should be in a different VLAN

* Create VLANs in every department
* VLANs you will use in your case, including VLANI also e.g. 10, 20, 30... etc.
* Each VLAN should be a different subnetwork