**Project 5**

**Design and Implementation of a Bank System Network Design**

**Case Study and Requirements**  
Jashore Stars Company Ltd. is a company in Bangladesh that deals with Banking and Insurance stuffs. The company is intending to expand its services across the Asian continent having the first branch to be in Khulna,Bangladesh. The company has secured a four-storied building to operate within the Bangladesh’s capital city. 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.** | **No. Of Departments** | **No. Of PC** | **No. Of Printers** |
| 1. | Management | 20 | 4 |
| 2. | Research | 20 | 4 |
| 3. | Human Resource | 20 | 4 |

|  |  |  |  |
| --- | --- | --- | --- |
| **Second Floor** | | | |
| **No.** | **No. Of Departments** | **No. Of PC** | **No. Of Printers** |
| 1. | Marketing | 20 | 4 |
| 2. | Account | 20 | 4 |
| 3. | Finance | 20 | 4 |

|  |  |  |  |
| --- | --- | --- | --- |
| **Third Floor** | | | |
| **No.** | **No. Of Departments** | **No. Of PC** | **No. Of Printers** |
| 1. | Logistics & Store | 20 | 4 |
| 2. | Customer Care | 20 | 4 |
| 3. | Guest Area | 40 | 2 |

|  |  |  |  |
| --- | --- | --- | --- |
| **Fourth Floor** | | | |
| **No.** | **No. Of Departments** | **No. Of PC** | **No. Of Printers** |
| 1. | Administration | 20 | 2 |
| 2. | IT | 20 | 2 |
| 3. | Server room | 2 admin PC and 3 servers (DHCP,HTTP,Email) | |

* Use a software modeling tool to visualize the network topology (Use Hierarchical Network Design)
  + **Software Modelling Tools:** MS Visio, Visual Paradigm, or Draw.io for modeling network design.
* Use any of the following network simulation software to implement the above topology.
  + **Simulation software:** Cisco Packet tracer or GNS3 for design and implementation.
* 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.
* Create HTTP, and E-mail servers.
* All devices in the network are expected to obtain an IP address dynamically from the dedicated DHCP servers located at the server room.
* Configure SSH in all the routers for remote login.

Basic configuration:

* Hostnames,
* Line Console and Enable passwords
* Banner messages
* Disable domain IP lookup
* encrypt all configured passwords.

Each department should be in a different VLAN and subnetwork; VLANs you will use in your case, e.g. 10, 20, 30… etc..

Planning of IP Addresses:

* You have been given 192.168.10.0 as the base address for this network. Do subnetting based on the number of hosts in every department as provided above. Identify subnet mask, useable IP address range, and broadcast address for each subnet.

End Device Configurations:

* Configure all the end devices in the network with the appropriate IP address based on the calculations above.

Configure port-security:

* Use sticky command to obtain MAC Address and Violation mode of the shutdown.

Test and Verifying Network Communication:

* Do the device’s in the same VLAN communicate?
* Do the device’s in different VLAN communicate?