**Case study**

**Postal Saving Bank of China Co. Ltd (PSBC)**

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**Postal Savings Bank of China Co. Ltd.** also known as **PSBC** is a commercial retail bank founded in 2007 and headquartered in Beijing that deals with Banking and Insurance. The company is intending to expand its service across the Shaanxi province having the first branch to be located in Xian, ankang . The company has secured a four- floor building to operate within ankang city. Therefore, the company would like to allow sourcing the knowledge from a group of final year student form ankang university to design and implement their company network. So, the requirements, model and the design and implement the network based on the company’s needs. Each floor has department as provided in the table below ...

中国邮政储蓄银行股份有限公司又称邮储银行，是一家商业零售银行，成立于2007年，总部设在北京，从事银行和保险业务。 公司拟将其服务扩展到整个陕西省，并在西安安康设立第一家分公司。 该公司已获得在安康市内运营的四层楼宇。 因此，公司希望允许从一群安康大学的最后一年学生那里获取知识来设计和实施他们的公司网络。 因此，要求，模型以及基于公司需求的网络设计和实施。 每个楼层都有下表中提供的部门...

|  |  |  |  |
| --- | --- | --- | --- |
| First floor | | | |
| No | Department | No. Of pc | No. Of printers |
| 1 | Management | 20 | 4 |
| 2 | Research | 20 | 4 |
| 3 | Human resource | 20 | 4 |

|  |  |  |  |
| --- | --- | --- | --- |
| Second floor | | | |
| No | Department | No. Of pc | No. Of printers |
| 1 | Marketing | 20 | 4 |
| 2 | Accounting | 20 | 4 |
| 3 | Finance | 20 | 4 |

|  |  |  |  |
| --- | --- | --- | --- |
| Third floor | | | |
| No | Department | 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 | Department | No. Of pc | No. Of printers | No of server |
| 1 | Administrator | 20 | 4 |  |
| 2 | ICT | 20 | 4 |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 3 | Server room | 2 admin pc | No printer | 3(DHCP, HTTP and Email.) |

Requirements:

* Use a software modeling tool to visualize the network topology.
* MS Visio
* Simulation software: Cisco packet tracer for design and implementation.
* There should be one router each floor. The router should be connecting switch 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 address automatically.
* Devices in all departments are required to communicate with each other’s.
* All device in the network are expected to obtain an IP address dynamically from the dedicated DHCP servers located at the server room.
* RIP v2 will be used to provide routing for the routers in the internal network and static routing for the external server.
* Create HTTP and email servers.
* Configure SSH in all routers for remote login.
* Use Hierarchical network design with redundancy included:
* Having core, distribution and access layers.
* Configure the basic configuration of the devices:
* Host names
* Line console and VTY password.
* Disable domain IP lookup
* Each department should be in a different VLAN:
* Create vlan’s in every department
* Each vlan should be a different subnetwork.
* Planning IP address:
* 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 provide above.
* Identify subnet mask, useable IP address range, and broadcast for each subnet.
* End device configurations:
* Configure all the end device in the network with the appropriate IP address based on the calculation above.
* Configure port security:
* Use sticky command to obtain MAC address.
* Violation mode of the shutdown
* Test communication