COMPUTER NETWORKING PROJECT

**TEAM MEMBERS:**

**Amit Prakash (RA1911003010385)**

**Shivam Pandey (RA1911003010383)**

**Mayank Sinha(RA1911003010386)**

PROJECT TITLE ~ “*HOSPITAL MANAGEMENT SYSTEM(HMS)”*

ABSTRACT:

|  |
| --- |
|  |
|  |
|  | This report describes the network design of Health care management or Hospital. In this network topology the nodes (i.e., computers, switches, routers or other devices) are connected to a local area network (LAN) and network via links (twisted pair copper wire cable or optical fibre cable). We have used Cisco Packet Tracer for designing the network topology It’s a general design which can be implemented at any higher level to manage network system. |

**Network Requirements:**

In Health care Network topology, we have desktop Computer, laptops, smart phone. There is a data flow between the devices within the system. We have divided our network into segments like for Hospital wards, clinical area etc. We have also used SSH for security. Our network requirements include network devices like routers, switches, server.

**Hospital segments:**

1 General ward

2 Private ward

3 Clinical Area

4 IT Department

5 Entrance Reception

6 Lobby, Parking, Cafeteria Features and Services • DHCP • DNS • Subnetting • HTTPS • SSH • SMTP • FTP • WIFI Network Topology

The diagram is properly commented. We have divided the diagram into 5 small segments as named in part 4. Hospital Segments representing different departments of hospital. We have mentioned the IP addresses on each and every interface of the hosts and routers, ranges of each segment are clearly commented.

**CONFIGURATION**

The diagram is properly commented. We have divided the diagram into 6 segments as named above. Hospital Segments representing different departments of hospital. Following are the running configuration of routers and switches related to different segments of hospital respectively:

|  |  |
| --- | --- |
| **General Ward Switch** | **General Ward Router** |
|  |  |

|  |  |
| --- | --- |
| **Private Ward Switch** | **Private Ward Router** |
|  |  |

|  |  |
| --- | --- |
| **Clinical Area Switch** | **Clinical Area Router** |
|  |  |

|  |  |
| --- | --- |
| **IT Department Switch** | **IT Department Router** |
|  |  |

|  |  |
| --- | --- |
| **Entrance Switch** | **Entrance Router** |
|  |  |

**DEFINITIONS**

* **DHCP**

The Dynamic Host Configuration Protocol (DHCP) is a network management protocol used on UDP/IP networks whereby a DHCP server dynamically assigns an IP address and other network configuration parameters to each device on a network so they can communicate with other IP networks.

* **DNS**

The Domain Name System is a hierarchical and decentralized naming system for computers, services, or other resources connected to the Internet or a private network.

* **SUBNETTING**

A subnetwork or subnet is a logical subdivision of an IP network. The practice of dividing a network into two or more networks is called subnetting.

* **HTTPS**

Hypertext Transfer Protocol Secure is an extension of the Hypertext Transfer Protocol. It is used for secure communication over a computer network and is widely used on the Internet. Hypertext Transfer Protocol Secure is an extension of the Hypertext Transfer Protocol. It is used for secure communication over a computer network and is widely used on the Internet.

* **SSH**

Secure Shell is a cryptographic network protocol for operating network services securely over an unsecured network.

* **SMTP**

The Simple Mail Transfer Protocol is a communication protocol for electronic mail transmission.

* **FTP**

The File Transfer Protocol is a standard network protocol used for the transfer of computer files between a client and server on a computer network.

* **WIFI**

Wi-Fi is the name of a wireless networking technology that uses radio waves to provide wireless high-speed Internet and network connections.

**NETWORK DIAGRAM WITH APPROPRIATE COMPONENTS:**

Graphical user interface, diagram, application

Description automatically generated

**CAMPUS DIAGRAM:**

Diagram

Description automatically generated

**COST OF NETWORK**

* **Cisco Switch**

18870 RUPEES Each

94089 RUPEES Cost of 5 Switch

* **Cisco Router**

26345 RUPEES Each

158070 RUPEES Cost of 6 Router

* **Cisco Server**

30108 RUPPES Each

60217 RUPEES Cost of 2 Server

* **Computer Cost**

9408 RUPEES Each

112907 RUPEES Cost of 12 Computer

**Total Cost = 425285 RUPEES.**