

Day1 Assignments

1. Write some network terminologies:

Bandwidth: The maximum rate of data transfer across a network path. It is usually measured in bits per second (bps).

Latency: The time it takes for data to travel from its source to its destination. Latency is usually measured in milliseconds (ms).

IP Address: A unique address that identifies a device on the internet or a local network. It stands for Internet Protocol address.

MAC Address: A unique identifier assigned to a network interface controller (NIC) for use as a network address in communications within a network segment.

Subnet: A segmented piece of a larger network. Subnets are designed to organize networks to improve performance and security.

Router: A device that forwards data packets between computer networks, creating an overlay internetwork.

Switch: A network device that connects devices together on a computer network, using packet switching to forward data to its destination.

Firewall: A network security system that monitors and controls incoming and outgoing network traffic based on predetermined security rules.

VPN (Virtual Private Network): Extends a private network across a public network, allowing users to send and receive data as if their devices were directly connected to the private network.

DHCP (Dynamic Host Configuration Protocol): A network management protocol used to automate the process of configuring devices on IP networks.

DNS (Domain Name System): A hierarchical and decentralized naming system for computers, services, or other resources connected to the internet or a private network. It translates domain names to IP addresses.

TCP/IP (Transmission Control Protocol/Internet Protocol): The fundamental suite of protocols that the internet and most private networks use for communication.

LAN (Local Area Network): A network that connects computers within a limited area such as a residence, school, laboratory, or office building.

WAN (Wide Area Network): A telecommunications network that extends over a large geographic area for the primary purpose of computer networking.

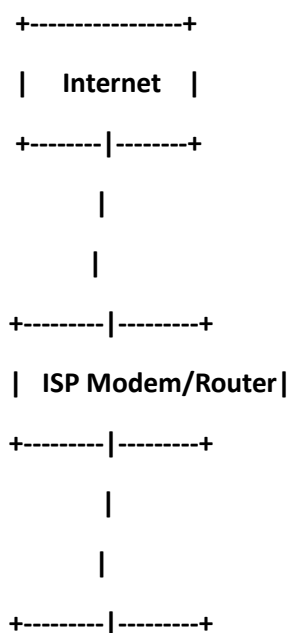
NAT (Network Address Translation): A method of remapping one IP address space into another by modifying network address information in the IP header of packets while they are in transit.

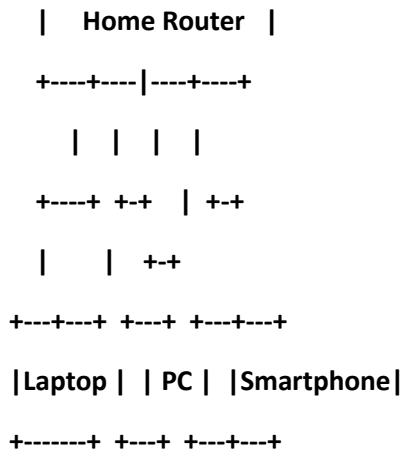
Packet: A formatted unit of data carried by a packet-switched network. Networks that transmit data in packets divide the data into packets before transmission.

Protocol: A set of rules or procedures for transmitting data between electronic devices, such as computers.

2. Draw your Home Network Topology and explain how you are accessing the RPS Lab environment

Home Network Topology Diagram:





In this diagram:

The Internet connects to the ISP Modem/Router.

The ISP Modem/Router connects to the Home Router.

The Home Router connects to various devices within the home network, such as a Laptop, PC, and Smartphone.

Accessing the RPS Lab Environment:

To access the RPS Lab environment, typically the following steps are involved:

VPN Connection: First, a VPN connection is established from a device (e.g., Laptop or PC) to the organization's network. This ensures secure access to internal resources.

Remote Desktop or SSH: Once connected via VPN, you can use Remote Desktop Protocol (RDP) or SSH to connect to the specific machines or servers within the RPS Lab environment.

Credentials: Use appropriate login credentials to authenticate your access to the RPS Lab.

PowerShell Commands: From your remote session, you can then use PowerShell commands to interact with and manage resources in the RPS Lab.

Detailed Steps:

Connect to VPN: On your home device (e.g., Laptop):

Open your VPN client.

Enter the VPN credentials provided by your organization.

Connect to the VPN to access the internal network.

Remote Desktop or SSH:

Open Remote Desktop Connection (RDP) or an SSH client (like PuTTY).

Enter the IP address or hostname of the server/machine in the RPS Lab.

Provide the necessary authentication credentials (username and password).

Access RPS Lab:

Once connected to the remote machine, open PowerShell.

Execute the necessary PowerShell commands to manage and interact with the RPS Lab environment.