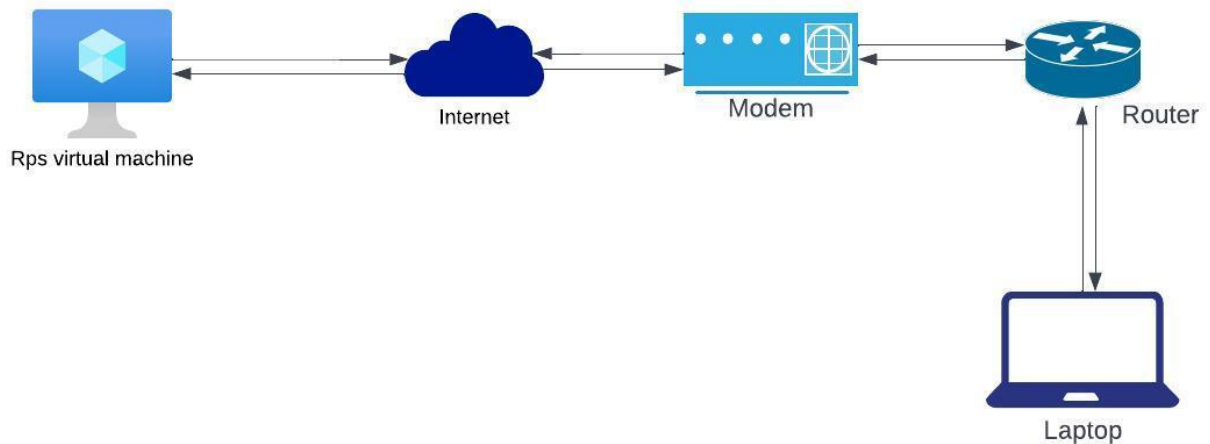**Assignment 1:** Draw your Home Network Topology and explain how you are accessing the RPS Lab environment.

PROCEDURE:

1. Start by connecting your computer or laptop to the internet through a router.

2. The router is connected to the internet via a cloud service.

3. There is an email from RPS Team containing the credentials required for login. In the email, there will be a URL link provided.

4. Click on the URL link to open the login page for the RPS cloud. Upload your login details (username and password) on the login page.

5. After providing the login details, the cloud virtual machine will open, giving you access to the RPS desktop.

Assignment 2: Identify a real-world application for both parallel computing and networked systems. Explain how these technologies are used and why they are important in that context

Title: Parallel Computing and Networked Systems in Video Streaming

Introduction: Parallel computing and networked systems are integral components of modern video streaming services, ensuring seamless playback and high-quality streaming experiences for users worldwide. This explores their roles in video streaming platforms like Netflix, YouTube, or Hulu.

1. **Parallel Computing:** Parallel computing involves breaking down tasks into smaller parts that can be executed simultaneously on multiple processing units. Unlike sequential computing, where tasks are processed one after another, parallel computing enables concurrent execution, leading to improved performance and efficiency. Examples include scientific simulations, data analytics, and multimedia processing.
2. **Networked Systems:** Networked systems refer to interconnected devices and communication infrastructure that enable data exchange and resource sharing. Components include routers, switches, servers, and client devices connected via networks such as the internet or local area networks (LANs). Networked systems facilitate data transmission, access to resources, and collaborative computing across distributed environments.
3. **Real-world Application:** Video Streaming Services Video streaming services leverage parallel computing and networked systems to deliver content to users efficiently:

- Parallel computing optimizes video processing on servers, enabling the simultaneous encoding, transcoding, and caching of video content to meet user demands.
- Networked systems facilitate the delivery of video data from servers to users' devices, ensuring low latency, high bandwidth, and reliable streaming experiences.
- Examples of popular video streaming platforms include Netflix, which utilizes distributed server infrastructure and content delivery networks (CDNs) to serve millions of users globally.
  4. Importance of Parallel Computing and Networked Systems in Video Streaming:
- Scalability: Parallel computing enables streaming services to handle increasing user demand and deliver high-definition content by distributing workload across multiple servers.

- Quality of Service: Networked systems ensure smooth playback and minimal buffering by optimizing data transmission and reducing latency, enhancing the streaming experience for users.
- Global Reach: Parallel computing and networked systems support the global reach of video streaming services, allowing seamless content delivery to users worldwide through CDNs and optimized network infrastructure.
    5. Conclusion: Parallel computing and networked systems are essential for the success of video streaming services, enabling scalability, maintaining quality of service, and facilitating global content delivery. Understanding these technologies is crucial for ensuring seamless and enjoyable streaming experiences for users.