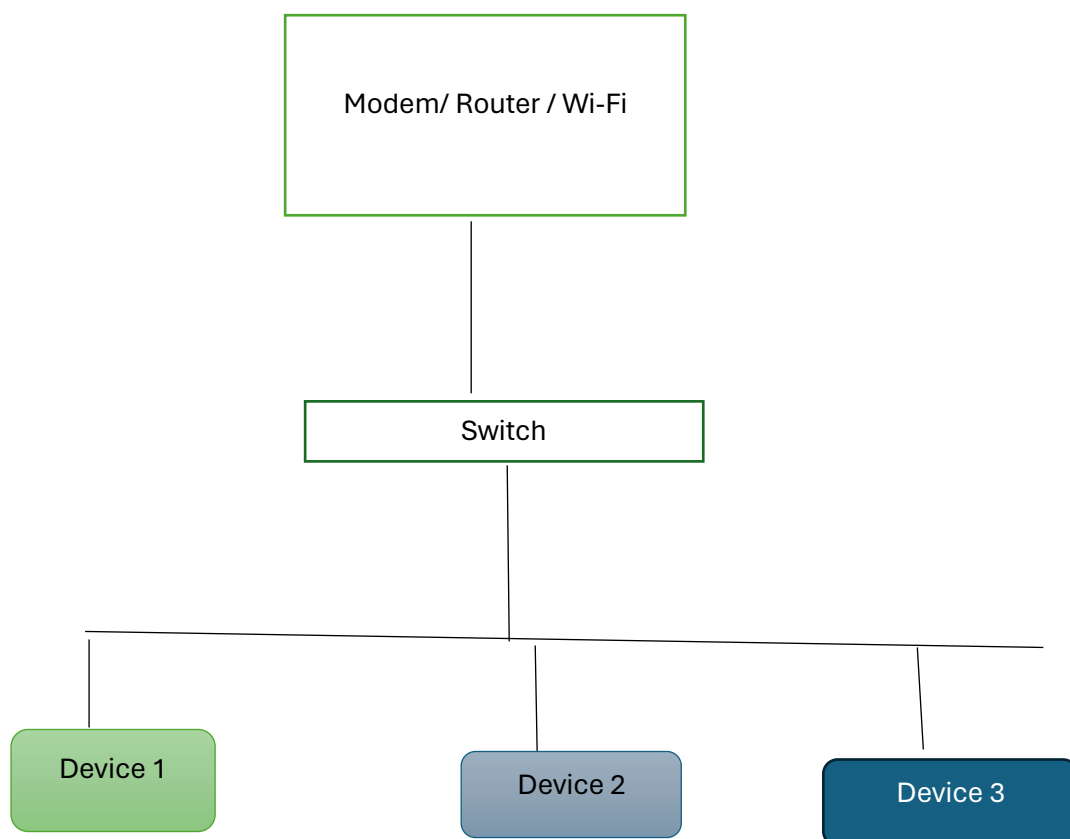


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## DAY – 1 ASSIGNMENT

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



In this diagram :-

- **ISP Modem/Router :-** This is our internet service provider's Wi-Fi router device which connects our home and all the devices to the internet.

- **Switch :-** This is a networking device that allows multiple devices to connect to the network. It provides additional Ethernet port for wired connections as well as for extension of our Wi-Fi range.
  - When we attempt to access the RPS Cloud lab, our device sends a request to our router, which then goes out to the internet through our Wi-Fi modem. The request then goes to the the internet to the cloud provider's data center and reaches the specific server hosting the RPS cloud Lab. The server processes the request and sends the response back through the same path to our device.

**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.**

**Solution : -**

1. **Parallel Computing :** Parallel computing is a type of computation in which many calculations or processes are carried out simultaneously. Here is an example:
  - **Supercomputers for Use in Astronomy:**

In astronomy, supercomputers equipped with parallel processing capabilities are used to process vast amounts of data generated by telescopes and other observational instruments. These supercomputers can perform complex calculations in a fraction of the time it would take a single-processor computer. This allows astronomers to create detailed simulations of celestial bodies, analyze light spectra from distant stars, and search for patterns in vast quantities of data that may indicate the presence of exoplanets.

**2. Networked Systems :** Networked systems are groups of interconnected computers that share resources and information.

Here's an example of a real-world application:

- **Cloud Lab Environment:**

A cloud lab environment is a virtual lab that provides a complete online learning environment with all the facilities of a physical lab. Networked systems play a crucial role in accessing cloud lab environments. Users can connect to the cloud lab environment through the internet from their personal computers. This allows users to access a wide range of resources and tools that they might not have on their local machines. It also enables collaboration among users in different geographical locations.

In both parallel computing and networked systems, the ability to process tasks concurrently and share resources efficiently makes these technologies vital in many fields. They enable faster processing times, greater computational power, and enhanced collaboration, making them indispensable in our increasingly connected and data-driven world.