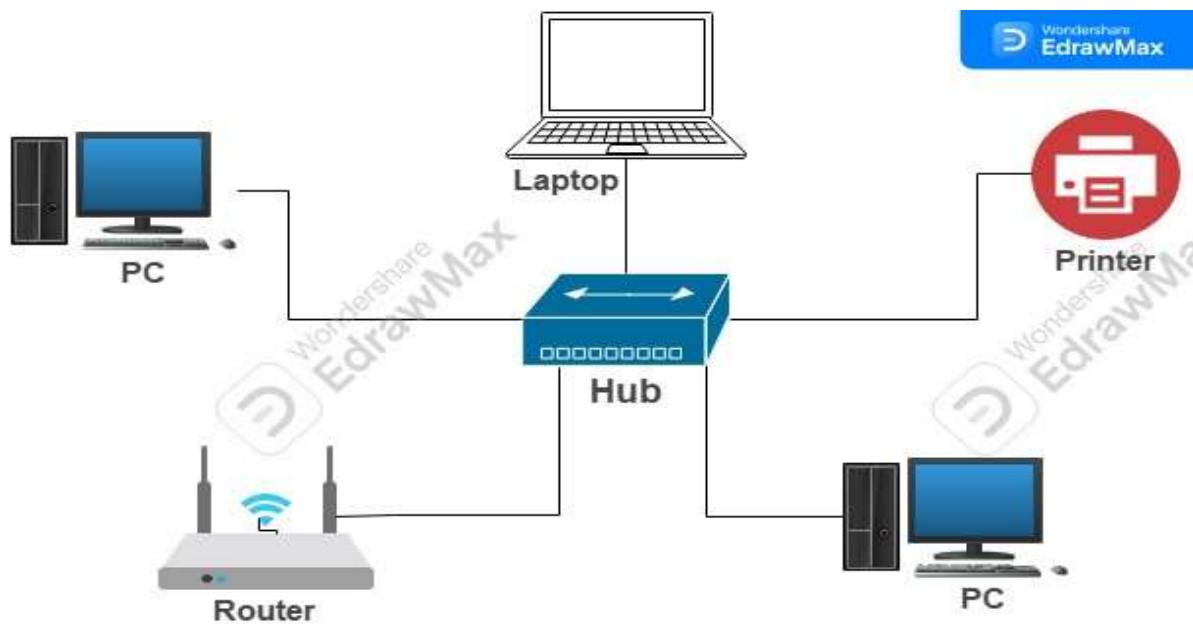


ASSIGNMENT -1 (DAY-1)

Assignment 1:

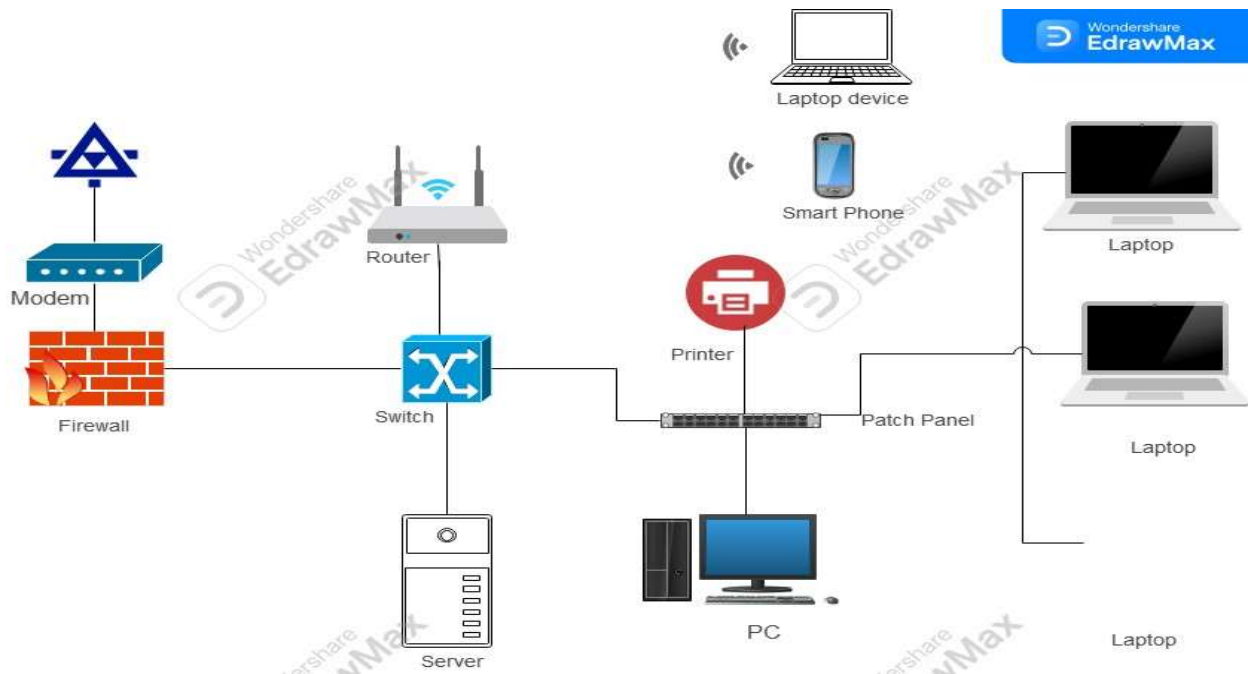
Draw your Home Network Topology and explain how you are accessing the RPS Lab environment.

Ans 1.



2. Network topology:

In above the devices work based on the following description.



Switches: Switches provide additional Ethernet ports to connect multiple devices in your home network. Each port on the switch acts as a connection point for devices such as computers, printers, gaming consoles, smart TVs, and network-attached storage (NAS) device.

Routers: Routers serve as the gateway between your home network and the internet. They connect your home network to your internet service provider (ISP), allowing devices within your network to access online resources, such as websites, email servers, and streaming services.

Local Area Network (LAN) Expansion: Switches enable the expansion of your home network by allowing you to connect more devices than the available ports on your router. This is particularly useful in larger homes or setups where multiple devices need to be connected in different rooms or locations.

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.

Ans.

One real-world application that leverages Parallel Computing:

WEATHER FORECASTING:

Parallel computing is crucial in weather forecasting because it allows meteorologists to process massive amounts of data simultaneously, enabling complex simulations and predictive models to run efficiently. Weather prediction involves analysing data from various sources such as satellites, weather stations, radars, and ocean buoys. Parallel computing enables these data sources to be processed concurrently, speeding up the generation of forecasts.

Networked systems are equally important in weather forecasting as they facilitate the collection, sharing, and distribution of data among different weather prediction centres and research institutions globally. Meteorological agencies worldwide rely on networked systems to exchange observational data, model outputs, and forecast information in real-time. This interconnected network of data exchange enables meteorologists to access a wide range of information from different geographical locations, improving the accuracy and reliability of weather forecasts.

In this context, parallel computing and networked systems work together to enhance the accuracy and timeliness of weather forecasts. By efficiently processing vast amounts of data and facilitating seamless communication between meteorological organizations, these technologies play a critical role in mitigating the impacts of severe weather events, informing disaster preparedness and response efforts, and supporting various industries such as agriculture, transportation, and energy.

One real-world application that leverages Network Computing:

ONLINE RETAIL:

Online retail is a type of eCommerce whereby a business sells goods or services directly to consumers from a website. The website may be their own, or it may be owned by a larger retailer or marketplace like Amazon. Online retail is a similar concept to brick-and-mortar retail.

Network computing plays a crucial role in the smooth functioning of online retail by facilitating fast, reliable, and secure communication between clients and servers, enabling dynamic content generation, real-time updates, transaction processing, and personalized shopping experiences.

The customer's device sends a request to the server for the detailed information of the selected product, such as its description, price, availability, and customer reviews.

If the customer decides to purchase the product, the server handles the transaction process. This involves checking the product's availability, calculating the total price including taxes and shipping costs, and securely processing the payment using payment gateways.

The server sends the search results back to the customer's device, where they are displayed on the search results page, typically in the form of a list of products with brief descriptions and images.