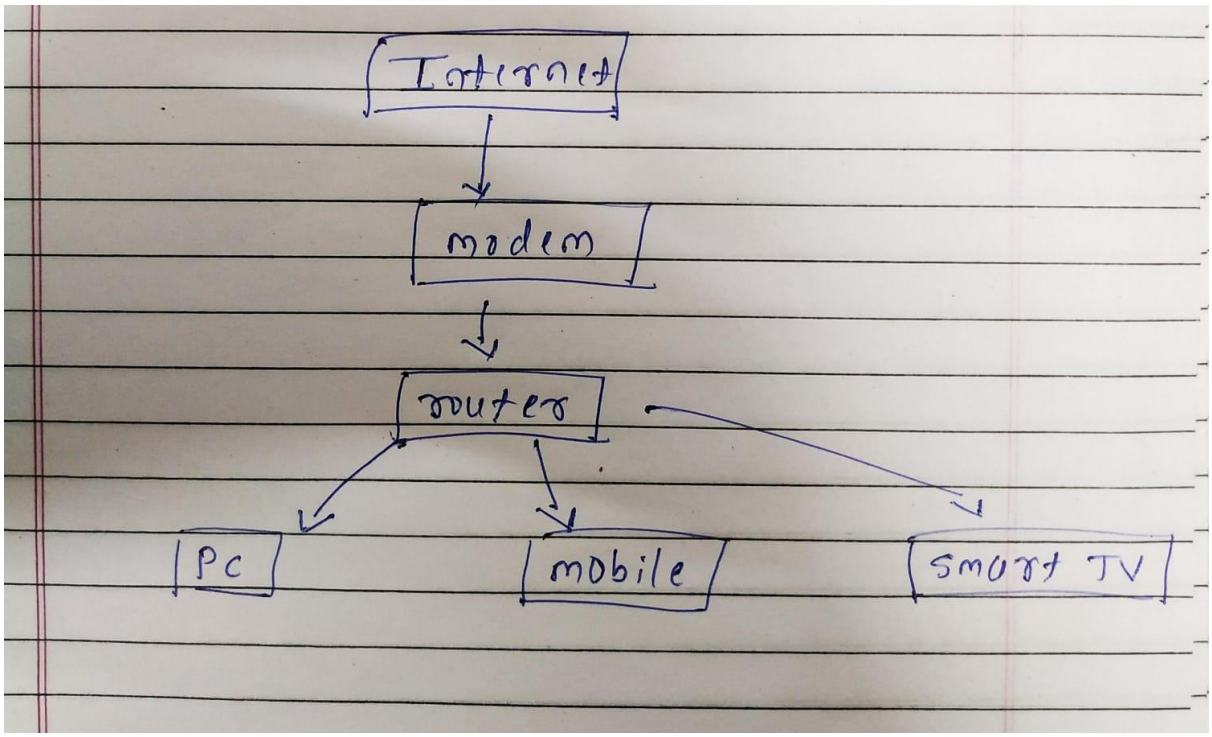
**PRAJWAL S HONASHETTI**

1. **Draw Your Home Network Topology and Explain how you are accessing the RPS Lab environment.**




In This Daigram:

1. **INTERNET :** This represents your connection to the broader internet. It's the network that allows you to access websites, send emails, stream videos, and so on.

2. **MODEM :** The modem is the device that connects your home network to your ISP's network. It's the gateway between your home network and the internet. It takes the signals from your ISP and converts them into a form that your router can understand.

3. **ROUTER:** The router is the central hub of your home network. It directs traffic between your devices and the internet. It also provides a layer of security by controlling which devices can access the internet and by protecting against external threats.

4. **PC,MOBILE,SMART TV:** These represent various devices that are part of your home network. The PC is connected to the router via an Ethernet cable, while the Phone and Smart TV are connected wirelessly through Wi-Fi.

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.**

**PARALELL-COMPUTING**

**Real-Word application: Weather Forecasting**

Weather forecasting involves complex simulations and computations to predict future weather patterns accurately. Parallel computing is essential in this context because it allows weather modeling software to split the computational workload across multiple processors or computing nodes. Each processor or node can work on a different part of the simulation simultaneously, significantly reducing the time required for calculations.

Parallel computing enables weather forecasting models to run faster, allowing meteorologists to generate forecasts more quickly and with higher resolution. This speed and accuracy are crucial for providing timely warnings of severe weather events such as hurricanes, tornadoes, and storms. Additionally, parallel computing enables ensemble forecasting, where multiple simulations with slight variations are run simultaneously to generate probabilistic forecasts, improving the reliability of predictions.

**IMPORTANT:**

**AGRICULTURE:** Farmers use weather forecasts to plan planting, irrigation, and harvesting activities, optimizing crop yields and minimizing losses due to adverse weather conditions.

**TRANSPORATION:** Airlines, shipping companies, and logistics providers depend on weather forecasts to optimize routes, minimize delays, and ensure the safety of passengers and cargo.

**NETWORK SYSTEMS:**

**REAL-WORLD APPLICATION: ONLINE BANKING**

Online banking systems rely on networked systems to provide customers with secure access to their accounts, conduct financial transactions, and access banking services remotely. In this context, networked systems consist of interconnected servers, databases, and client devices linked through the internet or private networks

When a customer accesses their bank's website or mobile app, their device communicates with the bank's servers over a network. The servers handle authentication, encryption, and transaction processing, while databases store account information, transaction history, and other sensitive data. Networked systems ensure that customers can securely access their accounts and perform transactions from anywhere with an internet connection.

**IMPORTANT**

**Accessibility**: Networked systems enable customers to access banking services anytime, anywhere, using various devices with internet connectivity.

**Security:** Banks use secure network protocols, encryption, and authentication mechanisms to protect customers' sensitive information and prevent unauthorized access to accounts.

**Convenience:** Networked systems streamline banking processes, allowing customers to check balances, transfer funds, pay bills, and apply for loans or credit cards without visiting a physical branch.

**Efficiency**: Online banking reduces the need for manual paperwork and in-person transactions, enabling banks to operate more efficiently and serve a larger customer base.