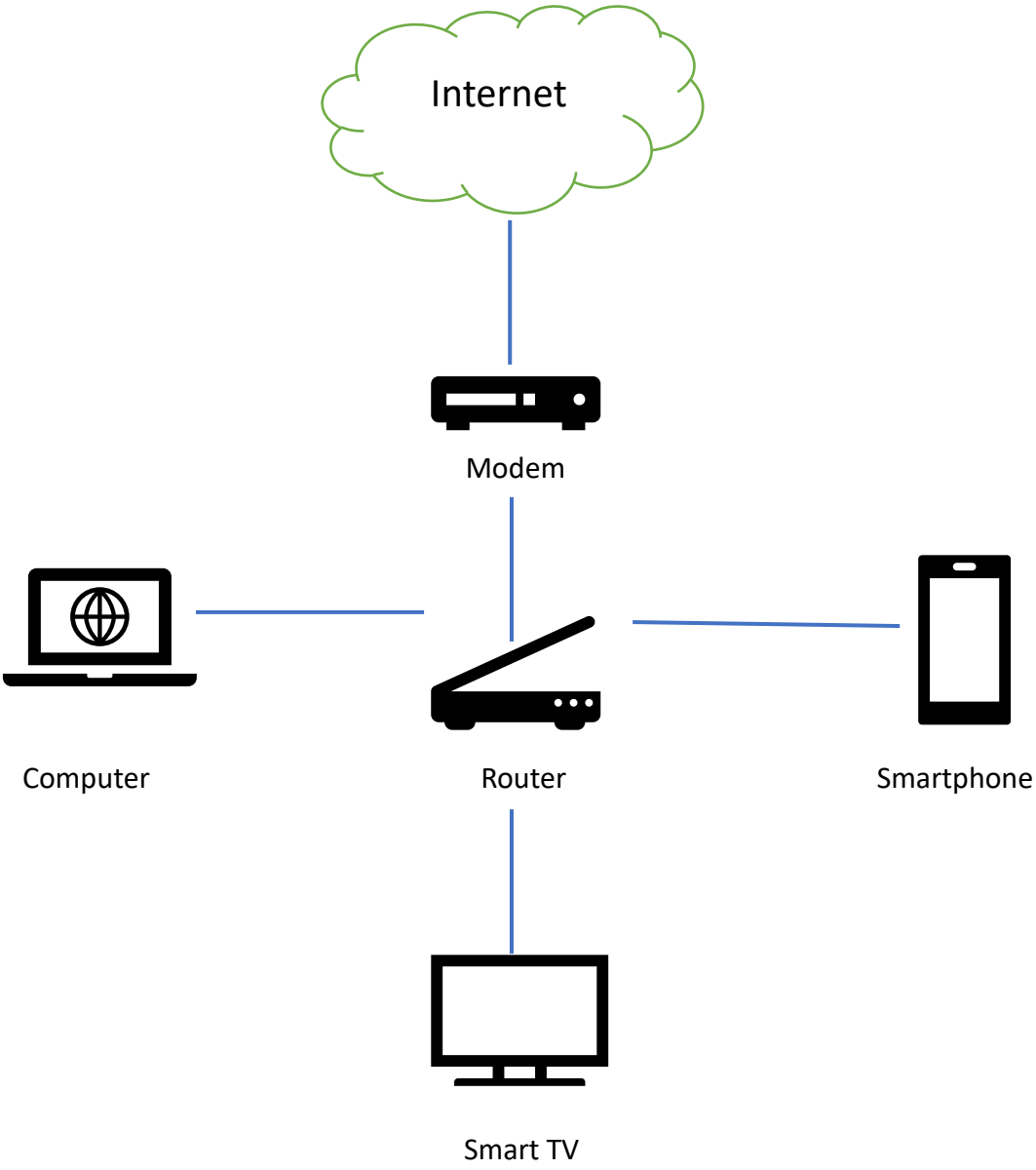
1.Draw your Home Network Topology and explain how you are accessing the RPS Lab environment.



Home Network Topology

Access RPS Lab environment

a. Open the website of RPS Lab.
b. Enter the Username and Password.
c. Click on Login.

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. Real world example of parallel computing is Weather Forecasting.

Weather forecasting involves complex mathematical models that simulate atmospheric conditions. These models divide the Earth's atmosphere into a 3D grid, and calculations are performed for each grid point to predict temperature, pressure, wind speed, and other variables. Because of the sheer volume of calculations needed and the tight deadlines for forecasts, parallel computing is essential. The model is broken down into smaller tasks that are distributed across multiple processors in a supercomputer.

It is important because:

Public safety: Warnings about severe weather events (hurricanes, tornadoes, floods) allow for timely evacuations and reduce the risk of injury or death.

Economic impact: Weather affects agriculture, transportation, energy consumption, and many other industries. Accurate forecasts help businesses make informed decisions and minimize losses.

Climate research: Long-term weather data and climate models rely on parallel computing to analyse vast amounts of data and understand climate change patterns.

Real World application of Network System is Online Banking.

Online banking relies heavily on networked systems to connect customers with their bank accounts and enable various transactions. When a customer accesses their account through a web browser or mobile app, they are connecting to the bank's servers through the internet.

It is important because:

Accessibility: Customers can access their accounts and perform transactions from anywhere with an internet connection.

Convenience: Online banking offers 24/7 availability and eliminates the need to visit a physical branch for many transactions.

Efficiency: Automated transactions and online processes reduce costs and improve efficiency for both banks and customers.

Security: Networked systems include security measures like encryption, firewalls, and intrusion detection systems to protect sensitive financial data.