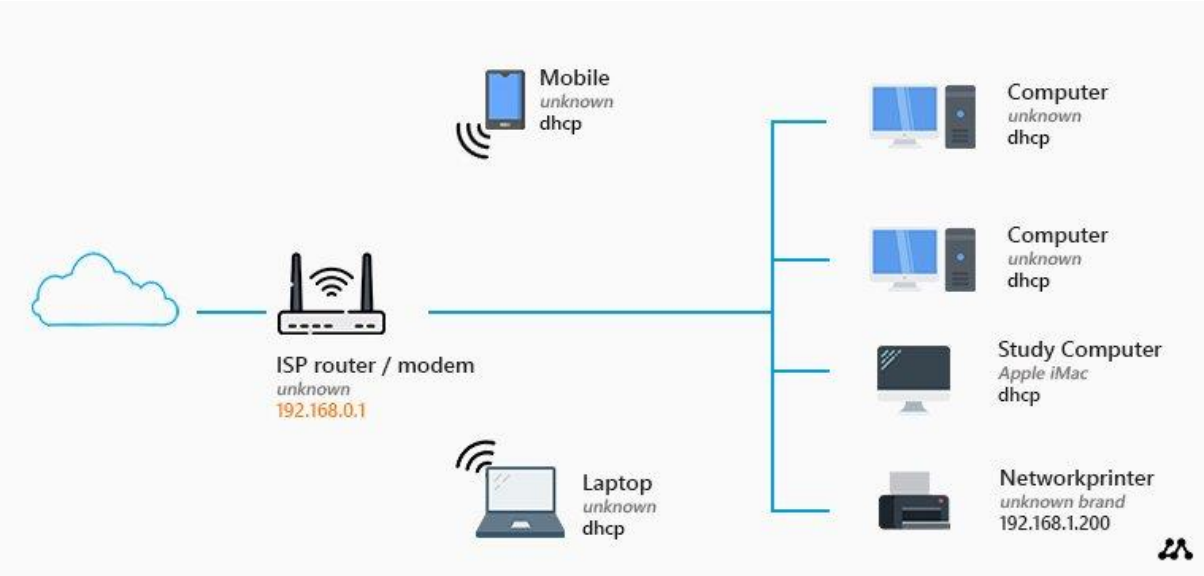
## D1 Assignment 1:




**Router:** The router is a physical or virtual internetworking device that is designed to receive, analyze, and forward data packets between computer networks. A router examines a destination IP address of a given data packet, and it uses the headers and forwarding tables to decide the best way to transfer the packets. There are some popular companies that develop routers; such are **Cisco**, **3Com**, **HP**, **Juniper**, **D-Link**.

**Switches:** A Switch is a device which is designed to interrupt the current flow in a circuit. In simple words, a Switch can make or break an electrical circuit. Every electrical and electronics application uses at least one switch to perform ON and OFF operation of the device.So, switches are a part of the control system and without it, control operation cannot be achieved. A switch can perform two functions, namely fully ON (by closing its contacts) or fully OFF (by opening its contacts).

**RPS Lab:** The RPS lab is present outside of the home network and we can access it through using VPN easily. A VPN creates a secure, encrypted connection over the internet, allowing you to access resources on the lab's networks as if you were physically present there. Once connected the VPN, you can use remote desktop software to access specific server within the lab environment.

## D1 Assignment 2:

## Parallel computing:

It is the use of multiple processing elements simultaneously for solving any problem. Problems are broken down into instructions and are solved concurrently as each resource that has been applied to work is working at the same time.

**Real-World Example:**

## Weather Forecasting:

Over in the UK, tech giant Google's DeepMind has collaborated with the UK's Met Office to further refine forecasting systems. DeepMind's foray into meteorological AI with the Met Office is predominantly focused on improving the accuracy of predictions concerning rainfall — a critical factor in mitigating flood risk and managing water resources — but also extends to wind and temperature forecasts. By processing vast amounts of data and identifying patterns indiscernible to human analysts, this partnership exemplifies AI's potential to enhance our understanding and anticipation of complex weather systems.