Assignment B1

- Title: Implement TCP connection using network simulator

- Problem Statement:
Study any network simulation tools to create a network with 3 nodes & establish a TCP connection between node 0 & node 1 such that node 0 send TCP packet to node 2 via node 1.

- Software & Hardware Reqs.
  - Intel i5+
  - Network Simulator
  - Windows/Linux

- Theory:
In computer network research, network simulation is a technique whereby a software program models the behavior of a network by calculating the interaction between different network entities. (routers, switches, node, access points, etc)

A network simulator is a software that predicts the behavior of a computer network.

Since computer networks have become too complex for tradional anyday network simulators are used.

- Types of network simulators
  Commercial, OPNET, Qualnet

  Opensource
  NS-2, NS-3, OMNET++, J-Sim

- Three way handshake
  1) Server must be prepared to accept an incoming connection.
  2) The client issues an active open by calling connect. This causes the client TCP to send a synchronous segment which tells the server clients sequence number.
  3) The server must acknowledge (ACK) the eg client's SYN & the server must also send it's own SYN containing initial sequence for the data server will send
  4) The client must acknowledge the server's SYN.

- Conclusion:
  Thus the NS2 Simulator was installed & TCP connection was tested successfully.