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 and node 1 such that node 0 send TCP packet to node 2 via node 1.

S/W and H/W Requirements
Windows 10, 8GB RAM, Monitor, Keyboard, Network simulator, Mouse.

Theory -

- In computer network research, network simulation is a technique whereby a software program models the behaviour of a network by calculating the interaction between different network entities (~~router~~ routers, switches, nod, access points, etc)
- A network simulator is software that predicts the behaviour of a computer network.

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

- Types of network simulator
  commercial
  OPNET, Qualnet

Open - Sources

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

Three-way handshake

- The server must be prepared to accept an incoming connection.
- The client issues an active open by calling connect. This causes the client TCP to send a synchronous segment which tells the server client's sequence number.
- The server, must acknowledge (ACK) the client's SYN & server must also send its own SYN containing initial sequence for the data server will send.
- The client must acknowledge the server's SYN.

- Conclusion -

Thus, the NS2 simulator was installed and TCP connection was tested successfully.