Computer Networks Lab (CS 353): Lab3/Assignment 2 (Graded)

Create the network scenario as shown below:
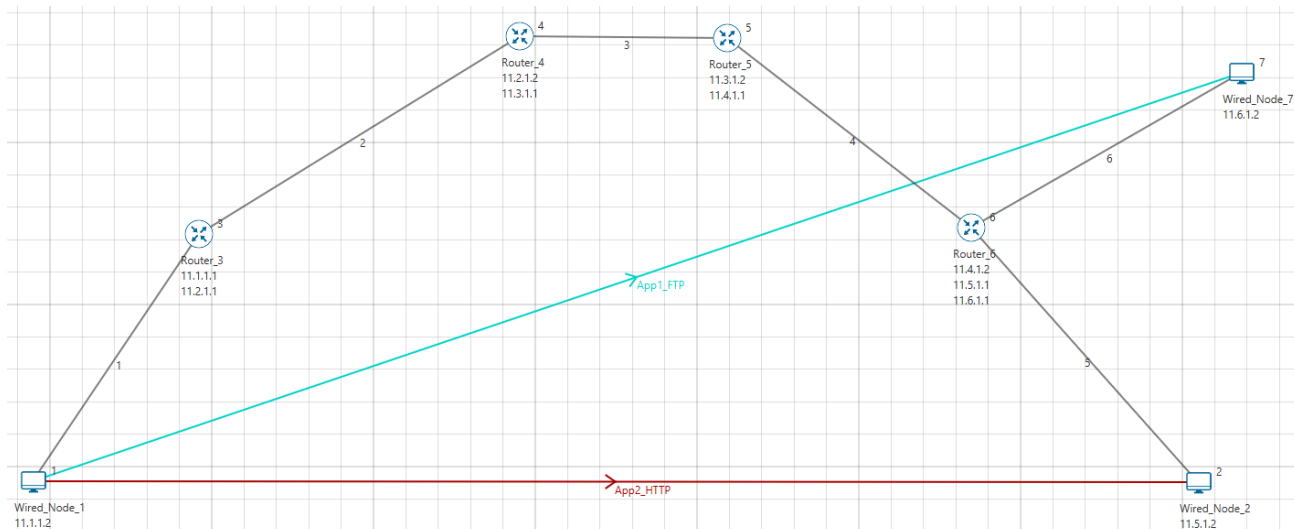
Create two applications, APP_1, between WiredNode1 (WN1) and WiredNode7 (WN7) and APP_2 that is between WN1 and WN2:

1) APP_1 is an FTP application with TCP as the underlying transport layer protocol that offers connection less service. Data transmission begins at 0 sec and ends at 50 Secs.

2) APP_2 is an HTTP application with UDP as the underlying transport protocol that offers connection oriented service. Data transmission begins at 0 sec and ends at 50 Secs.

The link speed of all the links is set to 2Mbps, however the link between WN1 Router_3 is configured such that the uplink and downlink speed is 1Mbps. The total simulation time is set for 50 Secs. Document the following metrics:

1) FTP packets generated and received between nodes.
2) HTTP packets generated and received between nodes.
3) Throughput, delay and jitter of both the applications.
4) Link-wise frames generated and received.
5) Percentage of overhead at the link-layer.
6) Plot for change in average throughput of link 6 due to change in the file sizes in the FTP application (step size 100000 bytes and maximum 800000 bytes).

Repeat, the same experiment by varying application APP_1 and APP_2 properties of inter-arrival-time of HTTP-requests and files to 10 and 15 secs. List out the layer-2 (MAC) and layer-3 (Network) addresses of all the nodes in the network along with the number of packets generated, packets forwarded, packets discarded and packets received at the IP_Layer. Finally, list out list of all protocols on each of the network device in the network.