**WRITE UP**

*I have simulated the different network conditions and written down the server results below:-*

**No drop or timeout condition**

Total packets transfered = 10072

Packets transfered in slow Start = 164

Packets transfered in CA = 9908

Packets Dupilicate Acked = 0

Packets Timed out = 0

Percent of Packets transfered in Slow Start = 1.628276

Percent of Packets transfered in Congession Avoidance = 98.371727

Percent of Packets Duplicate Acked = 0.000000

Percent of Packets Timed Out = 0.000000

**Simulating Drop only**

Total packets transfered = 10506

Packets transfered in slow Start = 99

Packets transfered in CA = 10407

Packets Dupilicate Acked = 434

Packets Timed out = 0

Percent of Packets transfered in Slow Start = 0.942319

Percent of Packets transfered in Congession Avoidance = 99.057678

Percent of Packets Duplicate Acked = 4.130973

Percent of Packets Timed Out = 0.000000

**Simulating Timeout only**

Total packets transfered = 10223

Packets transfered in slow Start = 222

Packets transfered in CA = 10001

Packets Dupilicate Acked = 0

Packets Timed out = 151

Percent of Packets transfered in Slow Start = 2.171574

Percent of Packets transfered in Congession Avoidance = 97.828423

Percent of Packets Duplicate Acked = 0.000000

Percent of Packets Timed Out = 1.477062

**Simulating Timeout and Packet Drop**

Total packets transfered = 10640

Packets transfered in slow Start = 175

Packets transfered in CA = 10465

Packets Dupilicate Acked = 421

Packets Timed out = 147

Percent of Packets transfered in Slow Start = 1.644737

Percent of Packets transfered in Congession Avoidance = 98.355263

Percent of Packets Duplicate Acked = 3.956767

Percent of Packets Timed Out = 1.381579

**Analysis :**

In a no drop situation there is a minimum number of packets transferred in slow start. Almost all the packets are transferred in Congestion Avoidance.

In the case of dropping packets randomly. The duplicate acknowledgement is being sent becomes less because the ssthresh value becomes less so the switch between Slow start to CA happens faster.

In the case of High latency then the response from the receiver is very slow so the server keeps transmitting packets again and again. Compared to the other network condition this condition has most packets sent in slow start mode. This is because every time a time out is encountered then the mode goes to slow start and the congestion window start from 1. So many packets are transferred in slow start with respective to other modes.

If both packet drop and latency is simulated , the packets dup-acked and timeout is less compared to the sum of both being simulated individually. This is because both the operation works simultaneously so one may compensate another at times.

NOTE : I have placed the supporting document for wrap around protection in **supportFile/wraparound.txt**. This file is a capture of the servers output. Thought I was not able to capture the entire file, the first few lines in the text file demonstrates the wrap-around implemented in the program.