Marking Scheme
CPSC 441 – Assignment 4
Total Points = 100

*We have to be able to **compile** and **run** your code using Java command line tools (i.e., `javac` and `java`) with default options (as installed on CPSC Linux machines). Otherwise, you will receive a mark of 0 regardless of the actual implementation and the amount of code submitted.*

General features:

1. Sending segments, receiving ACKs and retransmissions are implemented correctly.
2. TCP handshake is implemented correctly.
3. Sequence numbers are handled correctly.
4. Timer start and stop are implemented correctly.
5. Segment loss handled correctly.
6. Segment creation and transmission is implemented correctly.
7. The last segment of the file is handled correctly.

General Requirements

Description	Penalty
Program includes concepts or libraries that are not allowed	-50
Method signatures do not conform to the specification	-50
Program does not have proper code structure and comments	-10
Submission instructions have not been followed	-20
Design document not submitted or unacceptable.	**-20**

Design Requirements

Description	Penalty
Payload size is less than the maximum payload size	-30
Retransmissions are based on socket timeout options	-30

Comments:

Functionality:

Marks	Description	Grade
Base Case: Use the following typical values for various parameters: • Server Loss Probability (Loss) = 0.10 (ftpserver -l 0.10) • Server ACK Delay (Delay) = 10 (ftpserver -d 10) • Client Retransmission Timeout (RTO) = 50 (snwftp -t 50) *Run the client (locally) and server (remotely).*		
30	Transfer a binary file of medium size about several 100 Kbytes (example: medium.pdf). 1. Expected outcome: a. The client runs and transfer is completed quickly (e.g., a few seconds). b. The file is transferred correctly. c. There are no stalling or exceptions.	
30	Transfer a binary file of small size about several 10 Kbytes (example: small.pdf). 2. Correct output is printed: a. send/ack/timeout/retx (10) b. timeout output matches with server (20)	
Additional Cases: *Change the value of the parameters mentioned below. For others, use the default values.*		
10	1. Effect of Initial Sequence number (use small.pdf) c. Set init seq num = 10 (ftpserver -i 10) ✓ Transfer completed correctly	
10	2. Effect of file length: Loss = 0, Delay = 0 d. A large file of several Mbytes (example: large.pdf) ✓ Transfer completed correctly (it could take more than a minute)	
20	3. Effect of loss probability (use small.pdf) e. Loss = 0.95, RTO = 10, Delay = 0 ✓ There should be a lot of timeouts/retrans in this case (10) f. Loss = 0, RTO = 1000, Delay = 0 ✓ There should be no retransmissions in this case (10)	