

Exercise 4

Assume that at a certain point in time, the parameters associated with a TCP connection are as follows:

Sender's Sequence Number (SEQ#)	10
Receiver's Sequence Number (SEQ#)	20
Maximum Segment Size (MSS)	1 K
Receiver's Advertised Window (AW)	32 K
Sender's Congestion Window (CW)	16 K
Threshold value (TH)	16 K

Fill in the values of SEQ#, ACK#, AW (controlled by Receiver), CW (controlled by Sender) and TH (controlled by Sender) after each of the (cumulative) events listed below. Events labeled S occur at the Sender; events labeled R occur at the Receiver; and events labeled N occur on the network. ACK# refers to the Acknowledgement Number.

The notation Sk(size) identifies a segment from Sender to Receiver; for instance, S1(1K) refers to TCP segment of size 1024 bytes. Ignore the entries marked *.

	EVENT	SEQ#	ACK#	AW	CW	TH
S	Send S1(1K) of data			*		
R	Receive S1(1K), send ACK				*	*
S	Send S2(1K) of data			*		
S	Send S3(1K) of data			*		
N	S2(1K) dropped by router	*	*	*	*	*
R	Receive S3(1K), send ACK				*	*
R	Application consumes 1K	*	*	*	*	*
S	Send S4(1K) of data				*	
S	Timeout for S2(1K). Resend S2.			*		
R	Receive S4(1K), S2(1K), send ACK				*	
R	Application consumes 3K	*	*	*	*	*
S	Receive ACK					