

```
jenny@Jennys-MBP pa02 % python3 prog2.py
----- Stop and Wait Network Simulator Version 1.1 -----

Enter the number of messages to simulate: 10
Enter packet loss probability [enter 0.0 for no loss]:0.1
Enter packet corruption probability [0.0 for no corruption]:0.3
Enter average time between messages from sender's layer5 [ > 0.0]:10
Enter TRACE:2

GENERATE NEXT ARRIVAL: creating new arrival
INSERTEVENT: time is 0.000000
INSERTEVENT: future time will be 3.129880

A_init Called...
B_init Called...
-----
Event List Follows:

Event time: 3.129880, type: 1, entity: 0

-----

Event Type: From Layer 5
Event Time: 3.129879674754672
Event Entity: Host A
Packet: None

EVENT time: 3.129880, type: 1, fromlayer5 entity: 0

GENERATE NEXT ARRIVAL: creating new arrival
INSERTEVENT: time is 3.129880
INSERTEVENT: future time will be 19.531998

MAINLOOP: data given to student: aaaaaaaaaaaaaaaaaaaaaa
A_output Called... Message Data: b'aaaaaaaaaaaaaaaaaaaaaa'
[Sender building new packet for transportation]
[Sender sending packet to network layer]
TOLAYER3: seq: 0, ack -1, check: 1942
          aaaaaaaaaaaaaaaaaaaaaa
          TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 3.129880
INSERTEVENT: future time will be 7.600244

[Starting timer for packet]
START TIMER: starting timer at 3.129880

INSERTEVENT: time is 3.129880
INSERTEVENT: future time will be 13.129880

-----
```

Event List Follows:

Event time: 7.600244, type: 2, entity: 1

Event time: 13.129880, type: 0, entity: 0

Event time: 19.531998, type: 1, entity: 0

-----

Event Type: From Layer 3

Event Time: 7.6002438913074375

Event Entity: Host B

Packet: Seqnum: 0

Acknum: -1

Checksum: 1942

Payload: b'aaaaaaaaaaaaaaaaaaaa'

EVENT time: 7.600244, type: 2, fromlayer3 entity: 1

B\_input Called:

Seqnum: 0

Acknum: -1

Checksum: 1942

Payload: b'aaaaaaaaaaaaaaaaaaaa'

[Reciever recieved packet from network layer]

TOLAYER5: data received:

aaaaaaaaaaaaaaaaaaaa

[Reciever sending back ACK]

TOLAYER3: seq: 0, ack 0, check: 1942

aaaaaaaaaaaaaaaaaaaa

TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 7.600244

INSERTEVENT: future time will be 13.823343

-----

Event List Follows:

Event time: 13.129880, type: 0, entity: 0

Event time: 13.823343, type: 2, entity: 0

Event time: 19.531998, type: 1, entity: 0

-----

Event Type: Timer Interrupt

Event Time: 13.129879674754672

Event Entity: Host A

Packet: None

EVENT time: 13.129880, type: 0, timerinterrupt entity: 0

A\_timerinterrupt Called...

[Timeout! Sender resending packet...]

TOLAYER3: seq: 0, ack -1, check: 1942

aaaaaaaaaaaaaaaaaaaaaa

TOLAYER3: packet being corrupted

TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 13.129880

INSERTEVENT: future time will be 19.672990

[Starting timer for packet]

START TIMER: starting timer at 13.129880

INSERTEVENT: time is 13.129880

INSERTEVENT: future time will be 23.129880

-----

Event List Follows:

Event time: 13.823343, type: 2, entity: 0

Event time: 19.531998, type: 1, entity: 0

Event time: 19.672990, type: 2, entity: 1

Event time: 23.129880, type: 0, entity: 0

-----

Event Type: From Layer 3

Event Time: 13.82334307585923

Event Entity: Host A

Packet: Seqnum: 0

Acknum: 0

Checksum: 1942

Payload: b'aaaaaaaaaaaaaaaaaaaa'

EVENT time: 13.823343, type: 2, fromlayer3 entity: 0

A\_input Called:

Seqnum: 0

Acknum: 0

Checksum: 1942

Payload: b'aaaaaaaaaaaaaaaaaaaa'

[Sender recieved packet from network layer]

[Sender recieved correct ACK from reciever]

[Timer stopped for packet]

STOP TIMER: stopping timer at 13.823343

```
-----
Event List Follows:

Event time: 19.531998, type: 1, entity: 0

Event time: 19.672990, type: 2, entity: 1

-----

Event Type: From Layer 5
Event Time: 19.531997689185086
Event Entity: Host A
Packet: None

EVENT time: 19.531998, type: 1, fromlayer5 entity: 0

GENERATE NEXT ARRIVAL: creating new arrival
INSERTEVENT: time is 19.531998
INSERTEVENT: future time will be 31.932695

MAINLOOP: data given to student: bbbbbbbbbbbbbbbbbbbbbbb
A_output Called... Message Data: b'bbbbbbbbbbbbbbbbbbbbbb'
[Sender building new packet for transportation]
[Sender sending packet to network layer]
TOLAYER3: packet being lost

[Starting timer for packet]
START TIMER: starting timer at 19.531998

INSERTEVENT: time is 19.531998
INSERTEVENT: future time will be 29.531998

-----
Event List Follows:

Event time: 19.672990, type: 2, entity: 1

Event time: 29.531998, type: 0, entity: 0

Event time: 31.932695, type: 1, entity: 0

-----

Event Type: From Layer 3
Event Time: 19.672989881867856
Event Entity: Host B
Packet: Seqnum: 0
Acknum: -1
Checksum: 1942
Payload: b'Zaaaaaaaaaaaaaaaaaaaaa'

EVENT time: 19.672990, type: 2, fromlayer3 entity: 1
```

```
B_input Called:
Seqnum: 0
Acknum: -1
Checksum: 1942
Payload: b'Zaaaaaaaaaaaaaaaaaaaaa'
[Reciever recieved packet from network layer]
[Recieved corrupt packet! Discarding...]
-----
Event List Follows:

Event time: 29.531998, type: 0, entity: 0

Event time: 31.932695, type: 1, entity: 0

-----

Event Type: Timer Interrupt
Event Time: 29.531997689185086
Event Entity: Host A
Packet: None

EVENT time: 29.531998, type: 0, timerinterrupt entity: 0

A_timerinterrupt Called...
[Timeout! Sender resending packet...]
TOLAYER3: packet being lost

[Starting timer for packet]
START TIMER: starting timer at 29.531998

INSERTEVENT: time is 29.531998
INSERTEVENT: future time will be 39.531998

-----
Event List Follows:

Event time: 31.932695, type: 1, entity: 0

Event time: 39.531998, type: 0, entity: 0

-----

Event Type: From Layer 5
Event Time: 31.932695347288536
Event Entity: Host A
Packet: None

EVENT time: 31.932695, type: 1, fromlayer5 entity: 0

GENERATE NEXT ARRIVAL: creating new arrival
INSERTEVENT: time is 31.932695
INSERTEVENT: future time will be 40.967563
```



MAINLOOP: data given to student: cccccccccccccccccccccc  
A\_output Called... Message Data: b'cccccccccccccccccccc'  
[Sender building new packet for transportation]

-----  
Event List Follows:

Event time: 39.531998, type: 0, entity: 0

Event time: 40.967563, type: 1, entity: 0

-----

Event Type: Timer Interrupt  
Event Time: 39.53199768918509  
Event Entity: Host A  
Packet: None

EVENT time: 39.531998, type: 0, timerinterrupt entity: 0

A\_timerinterrupt Called...  
[Timeout! Sender resending packet...]  
TOLAYER3: seq: 1, ack -1, check: 1962  
                  bbbbbbbbbbbbbbbbbbbb  
TOLAYER3: packet being corrupted

                  TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 39.531998  
INSERTEVENT: future time will be 48.155761

[Starting timer for packet]  
START TIMER: starting timer at 39.531998

INSERTEVENT: time is 39.531998  
INSERTEVENT: future time will be 49.531998

-----  
Event List Follows:

Event time: 40.967563, type: 1, entity: 0

Event time: 48.155761, type: 2, entity: 1

Event time: 49.531998, type: 0, entity: 0

-----

Event Type: From Layer 5  
Event Time: 40.96756326787322  
Event Entity: Host A  
Packet: None

EVENT time: 40.967563, type: 1, fromlayer5 entity: 0

GENERATE NEXT ARRIVAL: creating new arrival

INSERTEVENT: time is 40.967563

INSERTEVENT: future time will be 56.340149

MAINLOOP: data given to student: ddddddddddddddddddd

A\_output Called... Message Data: b'ddddddddddddddddddd'

[Sender building new packet for transportation]

-----

Event List Follows:

Event time: 48.155761, type: 2, entity: 1

Event time: 49.531998, type: 0, entity: 0

Event time: 56.340149, type: 1, entity: 0

-----

Event Type: From Layer 3

Event Time: 48.155761045800915

Event Entity: Host B

Packet: Seqnum: 1

Acknum: -1

Checksum: 1962

Payload: b'Zbbbbbbbbbbbbbbbbbbbb'

EVENT time: 48.155761, type: 2, fromlayer3 entity: 1

B\_input Called:

Seqnum: 1

Acknum: -1

Checksum: 1962

Payload: b'Zbbbbbbbbbbbbbbbbbbbb'

[Reciever recieved packet from network layer]

[Recieved corrupt packet! Discarding...]

-----

Event List Follows:

Event time: 49.531998, type: 0, entity: 0

Event time: 56.340149, type: 1, entity: 0

-----

Event Type: Timer Interrupt

Event Time: 49.53199768918509

Event Entity: Host A

Packet: None

EVENT time: 49.531998, type: 0, timerinterrupt entity: 0

```

A_timerinterrupt Called...
[Timeout! Sender resending packet...]
TOLAYER3: seq: 1, ack -1, check: 1962
          bbbbbbbbbbbbbbbbbbbbbbb
TOLAYER3: packet being corrupted

          TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 49.531998
INSERTEVENT: future time will be 55.269487

[Starting timer for packet]
START TIMER: starting timer at 49.531998

INSERTEVENT: time is 49.531998
INSERTEVENT: future time will be 59.531998

-----
Event List Follows:

Event time: 55.269487, type: 2, entity: 1

Event time: 56.340149, type: 1, entity: 0

Event time: 59.531998, type: 0, entity: 0

-----

Event Type: From Layer 3
Event Time: 55.269487225534704
Event Entity: Host B
Packet: Seqnum: 1
Acknum: 999999
Checksum: 1962
Payload: b'bbbbbbbbbbbbbbbbbbbb'

EVENT time: 55.269487, type: 2, fromlayer3 entity: 1

B_input Called:
Seqnum: 1
Acknum: 999999
Checksum: 1962
Payload: b'bbbbbbbbbbbbbbbbbbbb'
[Reciever recieved packet from network layer]
[Recieved corrupt packet! Discarding...]

-----
Event List Follows:

Event time: 56.340149, type: 1, entity: 0

Event time: 59.531998, type: 0, entity: 0

```



-----  
Event Type: From Layer 5  
Event Time: 56.340149470469655  
Event Entity: Host A  
Packet: None

EVENT time: 56.340149, type: 1, fromlayer5 entity: 0

GENERATE NEXT ARRIVAL: creating new arrival  
INSERTEVENT: time is 56.340149  
INSERTEVENT: future time will be 63.640875

MAINLOOP: data given to student: eeeeeeeeeeeeeeeeeeeeeee  
A\_output Called... Message Data: b'eeeeeeeeeeeeeeeeeeee'  
[Sender building new packet for transportation]

-----  
Event List Follows:

Event time: 59.531998, type: 0, entity: 0

Event time: 63.640875, type: 1, entity: 0

-----  
Event Type: Timer Interrupt  
Event Time: 59.53199768918509  
Event Entity: Host A  
Packet: None

EVENT time: 59.531998, type: 0, timerinterrupt entity: 0

A\_timerinterrupt Called...  
[Timeout! Sender resending packet...]  
TOLAYER3: seq: 1, ack -1, check: 1962  
                  bbbbbbbbbbbbbbbbbbbb  
          TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 59.531998  
INSERTEVENT: future time will be 63.530883

[Starting timer for packet]  
START TIMER: starting timer at 59.531998

INSERTEVENT: time is 59.531998  
INSERTEVENT: future time will be 69.531998

-----  
Event List Follows:

Event time: 63.530883, type: 2, entity: 1

Event time: 63.640875, type: 1, entity: 0

Event time: 69.531998, type: 0, entity: 0

-----

Event Type: From Layer 3

Event Time: 63.53088319808705

Event Entity: Host B

Packet: Seqnum: 1

Acknum: -1

Checksum: 1962

Payload: b'bbbbbbbbbbbbbbbbbbbb'

EVENT time: 63.530883, type: 2, fromlayer3 entity: 1

B\_input Called:

Seqnum: 1

Acknum: -1

Checksum: 1962

Payload: b'bbbbbbbbbbbbbbbbbbbb'

[Reciever recieved packet from network layer]

TOLAYER5: data received:

bbbbbbbbbbbbbbbbbbbb

[Reciever sending back ACK]

TOLAYER3: seq: 1, ack 1, check: 1962

bbbbbbbbbbbbbbbbbbbb

TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 63.530883

INSERTEVENT: future time will be 72.177835

-----

Event List Follows:

Event time: 63.640875, type: 1, entity: 0

Event time: 69.531998, type: 0, entity: 0

Event time: 72.177835, type: 2, entity: 0

-----

Event Type: From Layer 5

Event Time: 63.64087455189643

Event Entity: Host A

Packet: None

EVENT time: 63.640875, type: 1, fromlayer5 entity: 0

GENERATE NEXT ARRIVAL: creating new arrival

INSERTEVENT: time is 63.640875

```
INSERTEVENT: future time will be 82.286371

MAINLOOP: data given to student: ffffffffffffffffffffff
A_output Called... Message Data: b'fffffffffffffffffffff'
[Sender building new packet for transportation]
-----
Event List Follows:

Event time: 69.531998, type: 0, entity: 0

Event time: 72.177835, type: 2, entity: 0

Event time: 82.286371, type: 1, entity: 0

-----

Event Type: Timer Interrupt
Event Time: 69.53199768918509
Event Entity: Host A
Packet: None

EVENT time: 69.531998, type: 0, timerinterrupt entity: 0

A_timerinterrupt Called...
[Timeout! Sender resending packet...]
TOLAYER3: seq: 1, ack -1, check: 1962
          bbbbbbbbbbbbbbbbbbbb
TOLAYER3: packet being corrupted

          TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 69.531998
INSERTEVENT: future time will be 76.158312

[Starting timer for packet]
START TIMER: starting timer at 69.531998

INSERTEVENT: time is 69.531998
INSERTEVENT: future time will be 79.531998

-----
Event List Follows:

Event time: 72.177835, type: 2, entity: 0

Event time: 76.158312, type: 2, entity: 1

Event time: 79.531998, type: 0, entity: 0

Event time: 82.286371, type: 1, entity: 0

-----
```

Event Type: From Layer 3  
Event Time: 72.17783535395711  
Event Entity: Host A  
Packet: Seqnum: 1  
Acknum: 1  
Checksum: 1962  
Payload: b'bbbbbbbbbbbbbbbbbbbb'

EVENT time: 72.177835, type: 2, fromlayer3 entity: 0

A\_input Called:  
Seqnum: 1  
Acknum: 1  
Checksum: 1962  
Payload: b'bbbbbbbbbbbbbbbbbbbb'  
[Sender recieved packet from network layer]  
[Sender recieved correct ACK from reciever]  
[Timer stopped for packet]  
STOP TIMER: stopping timer at 72.177835

[Sender sending packet to network layer]  
TOLAYER3: seq: 0, ack -1, check: 1982  
cccccccccccccccccccc  
TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 72.177835  
INSERTEVENT: future time will be 84.051704

[Starting timer for packet]  
START TIMER: starting timer at 72.177835

INSERTEVENT: time is 72.177835  
INSERTEVENT: future time will be 82.177835

-----  
Event List Follows:

Event time: 76.158312, type: 2, entity: 1  
Event time: 82.177835, type: 0, entity: 0  
Event time: 82.286371, type: 1, entity: 0  
Event time: 84.051704, type: 2, entity: 1

-----  
Event Type: From Layer 3  
Event Time: 76.15831210731842  
Event Entity: Host B  
Packet: Seqnum: 999999  
Acknum: -1

Checksum: 1962

Payload: b'bbbbbbbbbbbbbbbbbbbb'

EVENT time: 76.158312, type: 2, fromlayer3 entity: 1

B\_input Called:

Seqnum: 999999

Acknum: -1

Checksum: 1962

Payload: b'bbbbbbbbbbbbbbbbbbbb'

[Reciever recieved packet from network layer]

[Recieved corrupt packet! Discarding...]

-----  
Event List Follows:

Event time: 82.177835, type: 0, entity: 0

Event time: 82.286371, type: 1, entity: 0

Event time: 84.051704, type: 2, entity: 1

-----  
Event Type: Timer Interrupt

Event Time: 82.17783535395711

Event Entity: Host A

Packet: None

EVENT time: 82.177835, type: 0, timerinterrupt entity: 0

A\_timerinterrupt Called...

[Timeout! Sender resending packet...]

TOLAYER3: seq: 0, ack -1, check: 1982

cccccccccccccccccccc

TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 82.177835

INSERTEVENT: future time will be 90.617222

[Starting timer for packet]

START TIMER: starting timer at 82.177835

INSERTEVENT: time is 82.177835

INSERTEVENT: future time will be 92.177835

-----  
Event List Follows:

Event time: 82.286371, type: 1, entity: 0

Event time: 84.051704, type: 2, entity: 1



Event time: 90.617222, type: 2, entity: 1

Event time: 92.177835, type: 0, entity: 0

-----

Event Type: From Layer 5

Event Time: 82.28637113202434

Event Entity: Host A

Packet: None

EVENT time: 82.286371, type: 1, fromlayer5 entity: 0

GENERATE NEXT ARRIVAL: creating new arrival

INSERTEVENT: time is 82.286371

INSERTEVENT: future time will be 92.319862

MAINLOOP: data given to student: gggggggggggggggggggggggg

A\_output Called... Message Data: b'ggggggggggggggggggggggg'

[Sender building new packet for transportation]

[Sender sending packet to network layer]

TOLAYER3: seq: 0, ack -1, check: 1982

cccccccccccccccccccc

TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 82.286371

INSERTEVENT: future time will be 98.067272

[Starting timer for packet]

START TIMER: starting timer at 82.286371

Warning: attempt to start a timer that is already started

-----

Event List Follows:

Event time: 84.051704, type: 2, entity: 1

Event time: 90.617222, type: 2, entity: 1

Event time: 92.177835, type: 0, entity: 0

Event time: 92.319862, type: 1, entity: 0

Event time: 98.067272, type: 2, entity: 1

-----

Event Type: From Layer 3

Event Time: 84.05170428870451

Event Entity: Host B

Packet: Seqnum: 0

Acknum: -1  
Checksum: 1982  
Payload: b'cccccccccccccccccccc'

EVENT time: 84.051704, type: 2, fromlayer3 entity: 1

B\_input Called:

Seqnum: 0

Acknum: -1

Checksum: 1982

Payload: b'cccccccccccccccccccc'

[Reciever recieved packet from network layer]

TOLAYER5: data received:

cccccccccccccccccccc

[Reciever sending back ACK]

TOLAYER3: seq: 0, ack 0, check: 1982

cccccccccccccccccccc

TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 84.051704

INSERTEVENT: future time will be 87.113014

-----

Event List Follows:

Event time: 87.113014, type: 2, entity: 0

Event time: 90.617222, type: 2, entity: 1

Event time: 92.177835, type: 0, entity: 0

Event time: 92.319862, type: 1, entity: 0

Event time: 98.067272, type: 2, entity: 1

-----

Event Type: From Layer 3

Event Time: 87.11301419863095

Event Entity: Host A

Packet: Seqnum: 0

Acknum: 0

Checksum: 1982

Payload: b'cccccccccccccccccccc'

EVENT time: 87.113014, type: 2, fromlayer3 entity: 0

A\_input Called:

Seqnum: 0

Acknum: 0

Checksum: 1982

Payload: b'cccccccccccccccccccc'

```

[Sender recieved packet from network layer]
[Sender recieved correct ACK from reciever]
[Timer stopped for packet]
STOP TIMER: stopping timer at 87.113014

[Sender sending packet to network layer]
TOLAYER3: seq: 0, ack -1, check: 1982
          cccccccccccccccccccccc
TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 87.113014
INSERTEVENT: future time will be 106.847254

[Starting timer for packet]
START TIMER: starting timer at 87.113014

INSERTEVENT: time is 87.113014
INSERTEVENT: future time will be 97.113014

-----
Event List Follows:

Event time: 90.617222, type: 2, entity: 1
Event time: 92.319862, type: 1, entity: 0
Event time: 97.113014, type: 0, entity: 0
Event time: 98.067272, type: 2, entity: 1
Event time: 106.847254, type: 2, entity: 1

-----

Event Type: From Layer 3
Event Time: 90.61722244315975
Event Entity: Host B
Packet: Seqnum: 0
Acknum: -1
Checksum: 1982
Payload: b'cccccccccccccccccccc'

EVENT time: 90.617222, type: 2, fromlayer3 entity: 1

B_input Called:
Seqnum: 0
Acknum: -1
Checksum: 1982
Payload: b'cccccccccccccccccccc'
[Reciever recieved packet from network layer]
[Recieved duplicate packet! Resending ACK...]
TOLAYER3: seq: 0, ack 0, check: 1982

```

cccccccccccccccccccc  
TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 90.617222  
INSERTEVENT: future time will be 92.311344

-----  
Event List Follows:

Event time: 92.311344, type: 2, entity: 0  
Event time: 92.319862, type: 1, entity: 0  
Event time: 97.113014, type: 0, entity: 0  
Event time: 98.067272, type: 2, entity: 1  
Event time: 106.847254, type: 2, entity: 1

-----  
Event Type: From Layer 3  
Event Time: 92.3113437877921  
Event Entity: Host A  
Packet: Seqnum: 0  
Acknum: 0  
Checksum: 1982  
Payload: b'cccccccccccccccccccc'

EVENT time: 92.311344, type: 2, fromlayer3 entity: 0

A\_input Called:  
Seqnum: 0  
Acknum: 0  
Checksum: 1982  
Payload: b'cccccccccccccccccccc'  
[Sender recieved packet from network layer]  
[Sender recieved correct ACK from reciever]  
[Timer stopped for packet]  
STOP TIMER: stopping timer at 92.311344

[Sender sending packet to network layer]  
TOLAYER3: seq: 0, ack -1, check: 1982  
cccccccccccccccccccc  
TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 92.311344  
INSERTEVENT: future time will be 111.200405

[Starting timer for packet]  
START TIMER: starting timer at 92.311344

```
INSERTEVENT: time is 92.311344
INSERTEVENT: future time will be 102.311344
```

```
-----
Event List Follows:
```

```
Event time: 92.319862, type: 1, entity: 0

Event time: 98.067272, type: 2, entity: 1

Event time: 102.311344, type: 0, entity: 0

Event time: 106.847254, type: 2, entity: 1

Event time: 111.200405, type: 2, entity: 1
```

```
-----

Event Type: From Layer 5
Event Time: 92.31986152942815
Event Entity: Host A
Packet: None
```

```
EVENT time: 92.319862, type: 1, fromlayer5 entity: 0
```

```
GENERATE NEXT ARRIVAL: creating new arrival
INSERTEVENT: time is 92.319862
INSERTEVENT: future time will be 100.508726
```

```
MAINLOOP: data given to student: hhhhhhhhhhhhhhhhhhhhhhh
A_output Called... Message Data: b'hhhhhhhhhhhhhhhhhhhh'
[Sender building new packet for transportation]
[Sender sending packet to network layer]
TOLAYER3: seq: 0, ack -1, check: 1982
          cccccccccccccccccccccc
          TOLAYER3: scheduling arrival on other side
```

```
INSERTEVENT: time is 92.319862
INSERTEVENT: future time will be 119.841602
```

```
[Starting timer for packet]
START TIMER: starting timer at 92.319862
```

```
Warning: attempt to start a timer that is already started
```

```
-----
Event List Follows:
```

```
Event time: 98.067272, type: 2, entity: 1

Event time: 100.508726, type: 1, entity: 0
```



Event time: 102.311344, type: 0, entity: 0

Event time: 106.847254, type: 2, entity: 1

Event time: 111.200405, type: 2, entity: 1

Event time: 119.841602, type: 2, entity: 1

-----

Event Type: From Layer 3

Event Time: 98.06727165943157

Event Entity: Host B

Packet: Seqnum: 0

Acknum: -1

Checksum: 1982

Payload: b'cccccccccccccccccccc'

EVENT time: 98.067272, type: 2, fromlayer3 entity: 1

B\_input Called:

Seqnum: 0

Acknum: -1

Checksum: 1982

Payload: b'cccccccccccccccccccc'

[Reciever recieved packet from network layer]

[Recieved duplicate packet! Resending ACK...]

TOLAYER3: seq: 0, ack 0, check: 1982

cccccccccccccccccccc

TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 98.067272

INSERTEVENT: future time will be 100.013597

-----

Event List Follows:

Event time: 100.013597, type: 2, entity: 0

Event time: 100.508726, type: 1, entity: 0

Event time: 102.311344, type: 0, entity: 0

Event time: 106.847254, type: 2, entity: 1

Event time: 111.200405, type: 2, entity: 1

Event time: 119.841602, type: 2, entity: 1

-----

Event Type: From Layer 3

Event Time: 100.0135973194015  
Event Entity: Host A  
Packet: Seqnum: 0  
Acknum: 0  
Checksum: 1982  
Payload: b'cccccccccccccccccccc'

EVENT time: 100.013597, type: 2, fromlayer3 entity: 0

A\_input Called:  
Seqnum: 0  
Acknum: 0  
Checksum: 1982  
Payload: b'cccccccccccccccccccc'  
[Sender recieved packet from network layer]  
[Sender recieved correct ACK from reciever]  
[Timer stopped for packet]  
STOP TIMER: stopping timer at 100.013597

[Sender sending packet to network layer]  
TOLAYER3: seq: 0, ack -1, check: 1982  
cccccccccccccccccccc  
TOLAYER3: packet being corrupted

TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 100.013597  
INSERTEVENT: future time will be 127.747306

[Starting timer for packet]  
START TIMER: starting timer at 100.013597

INSERTEVENT: time is 100.013597  
INSERTEVENT: future time will be 110.013597

-----  
Event List Follows:

Event time: 100.508726, type: 1, entity: 0  
Event time: 106.847254, type: 2, entity: 1  
Event time: 110.013597, type: 0, entity: 0  
Event time: 111.200405, type: 2, entity: 1  
Event time: 119.841602, type: 2, entity: 1  
Event time: 127.747306, type: 2, entity: 1  
-----

Event Type: From Layer 5  
Event Time: 100.50872599072325  
Event Entity: Host A  
Packet: None

EVENT time: 100.508726, type: 1, fromlayer5 entity: 0

GENERATE NEXT ARRIVAL: creating new arrival

INSERTEVENT: time is 100.508726

INSERTEVENT: future time will be 118.442969

MAINLOOP: data given to student: iiiiiiiiiiiiiiiiiiiiii

A\_output Called... Message Data: b'iiiiiiiiiiiiiiiiiiii'

[Sender building new packet for transportation]

[Sender sending packet to network layer]

TOLAYER3: seq: 0, ack -1, check: 2102

iiiiiiiiiiiiiiiiiiii

TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 100.508726

INSERTEVENT: future time will be 132.849278

[Starting timer for packet]

START TIMER: starting timer at 100.508726

Warning: attempt to start a timer that is already started

-----

Event List Follows:

Event time: 106.847254, type: 2, entity: 1

Event time: 110.013597, type: 0, entity: 0

Event time: 111.200405, type: 2, entity: 1

Event time: 118.442969, type: 1, entity: 0

Event time: 119.841602, type: 2, entity: 1

Event time: 127.747306, type: 2, entity: 1

Event time: 132.849278, type: 2, entity: 1

-----

Event Type: From Layer 3

Event Time: 106.84725363902274

Event Entity: Host B

Packet: Seqnum: 0

Acknum: -1

Checksum: 1982

Payload: b'cccccccccccccccccccc'

EVENT time: 106.847254, type: 2, fromlayer3 entity: 1

B\_input Called:

Seqnum: 0

Acknum: -1

Checksum: 1982

Payload: b'cccccccccccccccccccc'

[Reciever recieved packet from network layer]

[Recieved duplicate packet! Resending ACK...]

TOLAYER3: seq: 0, ack 0, check: 1982

cccccccccccccccccccc

TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 106.847254

INSERTEVENT: future time will be 108.927391

-----

Event List Follows:

Event time: 108.927391, type: 2, entity: 0

Event time: 110.013597, type: 0, entity: 0

Event time: 111.200405, type: 2, entity: 1

Event time: 118.442969, type: 1, entity: 0

Event time: 119.841602, type: 2, entity: 1

Event time: 127.747306, type: 2, entity: 1

Event time: 132.849278, type: 2, entity: 1

-----

Event Type: From Layer 3

Event Time: 108.92739111754275

Event Entity: Host A

Packet: Seqnum: 0

Acknum: 0

Checksum: 1982

Payload: b'cccccccccccccccccccc'

EVENT time: 108.927391, type: 2, fromlayer3 entity: 0

A\_input Called:

Seqnum: 0

Acknum: 0

Checksum: 1982

Payload: b'cccccccccccccccccccc'

```
[Sender recieved packet from network layer]
[Sender recieved correct ACK from reciever]
[Timer stopped for packet]
STOP TIMER: stopping timer at 108.927391
```

```
-----
Event List Follows:
```

```
Event time: 111.200405, type: 2, entity: 1
Event time: 118.442969, type: 1, entity: 0
Event time: 119.841602, type: 2, entity: 1
Event time: 127.747306, type: 2, entity: 1
Event time: 132.849278, type: 2, entity: 1
```

```
-----
Event Type: From Layer 3
Event Time: 111.2004047481223
Event Entity: Host B
Packet: Seqnum: 0
Acknum: -1
Checksum: 1982
Payload: b'cccccccccccccccccccc'
```

```
EVENT time: 111.200405, type: 2, fromlayer3 entity: 1
```

```
B_input Called:
Seqnum: 0
Acknum: -1
Checksum: 1982
Payload: b'cccccccccccccccccccc'
[Reciever recieved packet from network layer]
[Recieved duplicate packet! Resending ACK...]
TOLAYER3: packet being lost
```

```
-----
Event List Follows:
```

```
Event time: 118.442969, type: 1, entity: 0
Event time: 119.841602, type: 2, entity: 1
Event time: 127.747306, type: 2, entity: 1
Event time: 132.849278, type: 2, entity: 1
```

```
-----
```



Event Type: From Layer 5  
Event Time: 118.44296862801163  
Event Entity: Host A  
Packet: None

EVENT time: 118.442969, type: 1, fromlayer5 entity: 0

MAINLOOP: data given to student: jjjjjjjjjjjjjjjjjjjjjjjj  
A\_output Called... Message Data: b'jjjjjjjjjjjjjjjjjjjjjjjj'  
[Sender building new packet for transportation]  
[Sender sending packet to network layer]  
TOLAYER3: seq: 1, ack -1, check: 2122  
                  jjjjjjjjjjjjjjjjjjjjjjjj  
TOLAYER3: packet being corrupted

TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 118.442969  
INSERTEVENT: future time will be 139.230885

[Starting timer for packet]  
START TIMER: starting timer at 118.442969

INSERTEVENT: time is 118.442969  
INSERTEVENT: future time will be 128.442969

-----  
Event List Follows:

Event time: 119.841602, type: 2, entity: 1  
Event time: 127.747306, type: 2, entity: 1  
Event time: 128.442969, type: 0, entity: 0  
Event time: 132.849278, type: 2, entity: 1  
Event time: 139.230885, type: 2, entity: 1

-----  
Event Type: From Layer 3  
Event Time: 119.84160156098854  
Event Entity: Host B  
Packet: Seqnum: 0  
Acknum: -1  
Checksum: 1982  
Payload: b'cccccccccccccccccccc'

EVENT time: 119.841602, type: 2, fromlayer3 entity: 1

B\_input Called:

Seqnum: 0  
Acknum: -1  
Checksum: 1982  
Payload: b'cccccccccccccccccccc'  
[Reciever recieved packet from network layer]  
[Recieved duplicate packet! Resending ACK...]  
TOLAYER3: seq: 0, ack 0, check: 1982  
                  cccccccccccccccccccc  
          TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 119.841602  
INSERTEVENT: future time will be 123.394340

-----  
Event List Follows:

Event time: 123.394340, type: 2, entity: 0  
Event time: 127.747306, type: 2, entity: 1  
Event time: 128.442969, type: 0, entity: 0  
Event time: 132.849278, type: 2, entity: 1  
Event time: 139.230885, type: 2, entity: 1

-----  
Event Type: From Layer 3  
Event Time: 123.39433997376393  
Event Entity: Host A  
Packet: Seqnum: 0  
Acknum: 0  
Checksum: 1982  
Payload: b'cccccccccccccccccccc'

EVENT time: 123.394340, type: 2, fromlayer3 entity: 0

A\_input Called:  
Seqnum: 0  
Acknum: 0  
Checksum: 1982  
Payload: b'cccccccccccccccccccc'  
[Sender recieved packet from network layer]  
[Sender recieved incorrect ACK from reciever! Ignoring...]

-----  
Event List Follows:

Event time: 127.747306, type: 2, entity: 1  
Event time: 128.442969, type: 0, entity: 0

Event time: 132.849278, type: 2, entity: 1

Event time: 139.230885, type: 2, entity: 1

-----

Event Type: From Layer 3

Event Time: 127.74730570884083

Event Entity: Host B

Packet: Seqnum: 0

Acknum: -1

Checksum: 1982

Payload: b'Zcccccccccccccccccccc'

EVENT time: 127.747306, type: 2, fromlayer3 entity: 1

B\_input Called:

Seqnum: 0

Acknum: -1

Checksum: 1982

Payload: b'Zcccccccccccccccccccc'

[Reciever recieved packet from network layer]

[Recieved corrupt packet! Discarding...]

-----

Event List Follows:

Event time: 128.442969, type: 0, entity: 0

Event time: 132.849278, type: 2, entity: 1

Event time: 139.230885, type: 2, entity: 1

-----

Event Type: Timer Interrupt

Event Time: 128.4429686280116

Event Entity: Host A

Packet: None

EVENT time: 128.442969, type: 0, timerinterrupt entity: 0

A\_timerinterrupt Called...

[Timeout! Sender resending packet...]

TOLAYER3: packet being lost

[Starting timer for packet]

START TIMER: starting timer at 128.442969

INSERTEVENT: time is 128.442969

INSERTEVENT: future time will be 138.442969

-----

Event List Follows:

Event time: 132.849278, type: 2, entity: 1

Event time: 138.442969, type: 0, entity: 0

Event time: 139.230885, type: 2, entity: 1

-----

Event Type: From Layer 3

Event Time: 132.84927765108512

Event Entity: Host B

Packet: Seqnum: 0

Acknum: -1

Checksum: 2102

Payload: b'iiiiiiiiiiiiiiiiiiii'

EVENT time: 132.849278, type: 2, fromlayer3 entity: 1

B\_input Called:

Seqnum: 0

Acknum: -1

Checksum: 2102

Payload: b'iiiiiiiiiiiiiiiiiiii'

[Reciever recieved packet from network layer]

TOLAYER5: data received:

iiiiiiiiiiiiiiiiiiii

[Reciever sending back ACK]

TOLAYER3: seq: 0, ack 0, check: 2102

iiiiiiiiiiiiiiiiiiii

TOLAYER3: packet being corrupted

TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 132.849278

INSERTEVENT: future time will be 139.344878

-----

Event List Follows:

Event time: 138.442969, type: 0, entity: 0

Event time: 139.230885, type: 2, entity: 1

Event time: 139.344878, type: 2, entity: 0

-----

Event Type: Timer Interrupt

Event Time: 138.4429686280116

Event Entity: Host A

Packet: None

EVENT time: 138.442969, type: 0, timerinterrupt entity: 0

A\_timerinterrupt Called...

[Timeout! Sender resending packet...]

TOLAYER3: seq: 1, ack -1, check: 2122

jjjjjjjjjjjjjjjjjjjjjjjj

TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 138.442969

INSERTEVENT: future time will be 148.050545

[Starting timer for packet]

START TIMER: starting timer at 138.442969

INSERTEVENT: time is 138.442969

INSERTEVENT: future time will be 148.442969

-----

Event List Follows:

Event time: 139.230885, type: 2, entity: 1

Event time: 139.344878, type: 2, entity: 0

Event time: 148.050545, type: 2, entity: 1

Event time: 148.442969, type: 0, entity: 0

-----

Event Type: From Layer 3

Event Time: 139.23088544859283

Event Entity: Host B

Packet: Seqnum: 1

Acknum: -1

Checksum: 2122

Payload: b'Zjjjjjjjjjjjjjjjjjjjjjjjj'

EVENT time: 139.230885, type: 2, fromlayer3 entity: 1

B\_input Called:

Seqnum: 1

Acknum: -1

Checksum: 2122

Payload: b'Zjjjjjjjjjjjjjjjjjjjjjjjj'

[Reciever recieved packet from network layer]

[Recieved corrupt packet! Discarding...]

-----

Event List Follows:



Event time: 139.344878, type: 2, entity: 0

Event time: 148.050545, type: 2, entity: 1

Event time: 148.442969, type: 0, entity: 0

-----

Event Type: From Layer 3

Event Time: 139.34487843826489

Event Entity: Host A

Packet: Seqnum: 0

Acknum: 0

Checksum: 2102

Payload: b'Ziiiiiiiiiiiiiiiiiiii'

EVENT time: 139.344878, type: 2, fromlayer3 entity: 0

A\_input Called:

Seqnum: 0

Acknum: 0

Checksum: 2102

Payload: b'Ziiiiiiiiiiiiiiiiiiii'

[Sender recieved packet from network layer]

[Sender recieved a corrupted packet from reciever! Discarding...]

-----

Event List Follows:

Event time: 148.050545, type: 2, entity: 1

Event time: 148.442969, type: 0, entity: 0

-----

Event Type: From Layer 3

Event Time: 148.0505447289442

Event Entity: Host B

Packet: Seqnum: 1

Acknum: -1

Checksum: 2122

Payload: b'jjjjjjjjjjjjjjjjjjjjjjjj'

EVENT time: 148.050545, type: 2, fromlayer3 entity: 1

B\_input Called:

Seqnum: 1

Acknum: -1

Checksum: 2122

Payload: b'jjjjjjjjjjjjjjjjjjjjjjjj'

[Reciever recieved packet from network layer]

TOLAYER5: data received:

jjjjjjjjjjjjjjjjjjjjjjjj

```
[Reciever sending back ACK]
TOLAYER3: seq: 1, ack 1, check: 2122
          jjjjjjjjjjjjjjjjjjjjjjjj
TOLAYER3: scheduling arrival on other side
```

```
INSERTEVENT: time is 148.050545
INSERTEVENT: future time will be 152.954124
```

```
-----
Event List Follows:
```

```
Event time: 148.442969, type: 0, entity: 0
```

```
Event time: 152.954124, type: 2, entity: 0
```

```
-----
```

```
Event Type: Timer Interrupt
Event Time: 148.4429686280116
Event Entity: Host A
Packet: None
```

```
EVENT time: 148.442969, type: 0, timerinterrupt entity: 0
```

```
A_timerinterrupt Called...
[Timeout! Sender resending packet...]
TOLAYER3: seq: 1, ack -1, check: 2122
          jjjjjjjjjjjjjjjjjjjjjjjj
TOLAYER3: packet being corrupted
```

```
TOLAYER3: scheduling arrival on other side
```

```
INSERTEVENT: time is 148.442969
INSERTEVENT: future time will be 152.830433
```

```
[Starting timer for packet]
START TIMER: starting timer at 148.442969
```

```
INSERTEVENT: time is 148.442969
INSERTEVENT: future time will be 158.442969
```

```
-----
Event List Follows:
```

```
Event time: 152.830433, type: 2, entity: 1
```

```
Event time: 152.954124, type: 2, entity: 0
```

```
Event time: 158.442969, type: 0, entity: 0
```

```
-----
```

Event Type: From Layer 3  
Event Time: 152.83043292543786  
Event Entity: Host B  
Packet: Seqnum: 1  
Acknum: -1  
Checksum: 2122  
Payload: b'Zjjjjjjjjjjjjjjjjjjjjjjjj'

EVENT time: 152.830433, type: 2, fromlayer3 entity: 1

B\_input Called:  
Seqnum: 1  
Acknum: -1  
Checksum: 2122  
Payload: b'Zjjjjjjjjjjjjjjjjjjjjjjjj'  
[Reciever recieved packet from network layer]  
[Recieved corrupt packet! Discarding...]

-----  
Event List Follows:

Event time: 152.954124, type: 2, entity: 0

Event time: 158.442969, type: 0, entity: 0

-----  
Event Type: From Layer 3  
Event Time: 152.95412403018162  
Event Entity: Host A  
Packet: Seqnum: 1  
Acknum: 1  
Checksum: 2122  
Payload: b'jjjjjjjjjjjjjjjjjjjjjjjj'

EVENT time: 152.954124, type: 2, fromlayer3 entity: 0

A\_input Called:  
Seqnum: 1  
Acknum: 1  
Checksum: 2122  
Payload: b'jjjjjjjjjjjjjjjjjjjjjjjj'  
[Sender recieved packet from network layer]  
[Sender recieved correct ACK from reciever]  
[Timer stopped for packet]  
STOP TIMER: stopping timer at 152.954124

-----  
Event List Follows:

-----  
None

Simulator terminated at time 152.95412403018162  
after sending 10 msgs from layer5