

```
C:\Users\sajin\workspace\GBNandSR>java Sender input.txt 8080 15
Seqnum bits 4 Window Size 4 Protocol gbn SegmentSize 500 Timeout 10000 port 8080 numpackets 15
Trying to send first packet
=====Sending packet with seqno===== 0
++++++Timer started for packet++++++0
=====Sending packet with seqno===== 1
=====Sending packet with seqno===== 2
=====Sending packet with seqno===== 3

=====ACK Received Seq no===== 4
=====Timer started for packet=====4
=====Sending packet with seqno===== 4
=====Sending packet with seqno===== 5
=====Sending packet with seqno===== 6
=====Sending packet with seqno===== 7

=====ACK Received Seq no===== 4
=====Timer started for packet=====4

^^^^^^^^^^^^^^^^^^^^^Timeout for packet^^^^^^^^^^^^^^^^^^^^^ 4
^^^^^^^^^^^^^^^^^^^^^ReSending packet with seqno^^^^^^^^^^^^^^^^^^^^^ 4
!!!! Timer Started for packet ===== 4
^^^^^^^^^^^^^^^^^^^^^ReSending packet with seqno^^^^^^^^^^^^^^^^^^^^^ 5
^^^^^^^^^^^^^^^^^^^^^ReSending packet with seqno^^^^^^^^^^^^^^^^^^^^^ 6
^^^^^^^^^^^^^^^^^^^^^ReSending packet with seqno^^^^^^^^^^^^^^^^^^^^^ 7

=====ACK Received Seq no===== 7
=====Timer started for packet=====7
=====Sending packet with seqno===== 8
=====Sending packet with seqno===== 9
=====Sending packet with seqno===== 10

=====ACK Received Seq no===== 7
=====Timer started for packet=====7
```

The packet with sequence number 4 and 7, timeout because of a checksum error in the receiver.

```
C:\Users\sajin\workspace\GBNandSR>java Receiver 8080
gb
!!!!!!!!!!!!!!!!!!!! Receiver set to receive data !!!!!!!!!!!!!
-----

===== Packet received - Sequence number ===== 0
=====Ack Sent - expecting seq no =====1

===== Packet received - Sequence number ===== 1
=====Ack Sent - expecting seq no =====2

===== Packet received - Sequence number ===== 2
=====Ack Sent - expecting seq no =====3

===== Packet received - Sequence number ===== 3
=====Ack Sent - expecting seq no =====4

===== Packet received - Sequence number ===== 4
-----Checksum Error-----

===== Packet received - Sequence number ===== 5
||||| Out of order Packet Discarded |||||

===== Packet received - Sequence number ===== 6
||||| Out of order Packet Discarded |||||

===== Packet received - Sequence number ===== 7
||||| Out of order Packet Discarded |||||
```

```
===== Packet received - Sequence number ===== 4
=====Ack Sent - expecting seq no =====5

===== Packet received - Sequence number ===== 5
=====Ack Sent - expecting seq no =====6

===== Packet received - Sequence number ===== 6
=====Ack Sent - expecting seq no =====7

===== Packet received - Sequence number ===== 7
-----Checksum Error-----

===== Packet received - Sequence number ===== 8
||||| Out of order Packet Discarded |||||

===== Packet received - Sequence number ===== 9
||||| Out of order Packet Discarded |||||

===== Packet received - Sequence number ===== 10
||||| Out of order Packet Discarded |||||

===== Packet received - Sequence number ===== 7
=====Ack Sent - expecting seq no =====8

===== Packet received - Sequence number ===== 8
=====Ack Sent - expecting seq no =====9
```

```
===== Packet received - Sequence number ===== 9
=====Ack Sent - expecting seq no =====10

===== Packet received - Sequence number ===== 10
=====Ack Sent - expecting seq no =====11

===== Packet received - Sequence number ===== 11
=====Ack Sent - expecting seq no =====12

===== Packet received - Sequence number ===== 12
=====Ack Sent - expecting seq no =====13

===== Packet received - Sequence number ===== 13
=====Ack Sent - expecting seq no =====14

===== Packet received - Sequence number ===== 14
=====Ack Sent - expecting seq no =====15
```

You could see packets (5,6,7) and (8,9,10) getting discarded for being out of order at the receiver side.

```
C:\Users\sajin\workspace\GBNandSR>java Sender input.txt 8080 8  
Seqnum bits 4 Window Size 4 Protocol sr SegmentSize 500 Timeout 10000 port 8080 numpackets 8  
Trying to send first packet  
=====Sending packet with seqno===== 0  
++++++Timer started for packet+++++0  
=====Sending packet with seqno===== 1  
=====Sending packet with seqno===== 2  
=====Sending packet with seqno===== 3  
  
===== ACK Received =====4  
  
^^^^^^^^^^^ Timeout for packet ^^^^^^^^^^^^ 0  
^^^^^^^^^^^ReSending packet with seqno^^^^^^^^^^^ 0  
===== Timer Started for packet ===== 0  
  
===== ACK Received =====4  
  
^^^^^^^^^^^ Timeout for packet ^^^^^^^^^^^^ 0  
^^^^^^^^^^^ReSending packet with seqno^^^^^^^^^^^ 0  
===== Timer Started for packet ===== 0  
  
===== ACK Received =====0  
=====Sending packet with seqno===== 4  
  
===== ACK Received =====5  
  
^^^^^^^^^^^ Timeout for packet ^^^^^^^^^^^^ 1  
^^^^^^^^^^^ReSending packet with seqno^^^^^^^^^^^ 1  
===== Timer Started for packet ===== 1
```

Selective repeat has separate acknowledgement for each packet. Cumulative ACK is not possible as is the case in GBN protocol.

Selective Repeat Receiver

```
C:\Users\sajin\workspace\GBNandSR>java Receiver 8080
sr
!!!!!!!!!!!!!! Receiver set to receive data !!!!!!!
-----

===== Packet received - Sequence number ===== 0
ACK sent ===== 1

===== Packet received - Sequence number ===== 1
ACK sent ===== 2

===== Packet received - Sequence number ===== 2
ACK sent ===== 3

===== Packet received - Sequence number ===== 3
ACK sent ===== 4

===== Packet received - Sequence number ===== 0
!!!!!!!!!!!!!!Checksum Error!!!!!!!!!!!!!! for packet0

===== Packet received - Sequence number ===== 0

===== Packet received - Sequence number ===== 4
ACK sent ===== 5

===== Packet received - Sequence number ===== 1

===== Packet received - Sequence number ===== 5
ACK sent ===== 6

===== Packet received - Sequence number ===== 2

===== Packet received - Sequence number ===== 6
!!!!!!!!!!!!!!Checksum Error!!!!!!!!!!!!!! for packet6

===== Packet received - Sequence number ===== 3

===== Packet received - Sequence number ===== 7
===== Packet received - Sequence number ===== 4

===== Packet received - Sequence number ===== 5

===== Packet received - Sequence number ===== 6
=====Last packet received=====
```

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Project 2 Report

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Note

I have used the overall packet structure of the code in <https://github.com/tomersimis/Go-Back-N> github repository, but the code and logic is completely different from this one.