

TestCase 1:

5 packets sent by client and received at server.

5 acks received by client and sent by sender.

Server logs: Here, mode_error = 0, which means that server will send ack if it receives the packet.

Server receives 5 packets from segment index 0 to segment index 4 in

```
sdhawan@DESKTOP-5G2787P:~/cn_project_1$ ./server.out 9999 0
Input parameter, mode_error : 0
Listening the messages
Received Packet is:
Start of Packet ID: 0xffff
Client ID: 0x1
Data: 0xffff1
Segment No.: 0x0
Length: 0x15
Payload: Data Packet Number: 1
End of Packet ID: 0xffff

Listening the messages
Received Packet is:
Start of Packet ID: 0xffff
Client ID: 0x1
Data: 0xffff1
Segment No.: 0x1
Length: 0x15
Payload: Data Packet Number: 2
End of Packet ID: 0xffff

Listening the messages
Received Packet is:
Start of Packet ID: 0xffff
Client ID: 0x1
Data: 0xffff1
Segment No.: 0x2
Length: 0x15
Payload: Data Packet Number: 3
End of Packet ID: 0xffff

Listening the messages
Received Packet is:
Start of Packet ID: 0xffff
Client ID: 0x1
Data: 0xffff1
Segment No.: 0x3
Length: 0x15
Payload: Data Packet Number: 4
End of Packet ID: 0xffff
```

```
Listening the messages
Received Packet is:
Start of Packet ID: 0xffff
Client ID: 0x1
Data: 0xffff1
Segment No.: 0x4
Length: 0x15
Payload: Data Packet Number: 5
End of Packet ID: 0xffff

Listening the messages
█
```

Client logs: Client receiving the acknowledgements for all five packets. The response packet is created by server.

```
sdhawan@DESKTOP-5G2787P:~/cn_project_1$ ./client.out localhost 9999 0
Input parameter, mode_error : 0
Got an ack.
Received Ack Packet is:
Start of Packet ID: 0xffff
client_id: 0x1
ack: 0xffff2
segment_no: 0x0
End of Packet ID: 0xffff

Got an ack.
Received Ack Packet is:
Start of Packet ID: 0xffff
client_id: 0x1
ack: 0xffff2
segment_no: 0x1
End of Packet ID: 0xffff

Got an ack.
Received Ack Packet is:
Start of Packet ID: 0xffff
client_id: 0x1
ack: 0xffff2
segment_no: 0x2
End of Packet ID: 0xffff

Got an ack.
Received Ack Packet is:
Start of Packet ID: 0xffff
client_id: 0x1
ack: 0xffff2
segment_no: 0x3
End of Packet ID: 0xffff

Got an ack.
Received Ack Packet is:
Start of Packet ID: 0xffff
client_id: 0x1
ack: 0xffff2
segment_no: 0x4
End of Packet ID: 0xffff
```

TestCase 2 :

Server receiving 5 packets from client.

1st packet is correct and ack is received for them. Rest packets are having 4 different errors as will be observed from reject Id at client.

Server logs: Server receiving 1 packet with correct value and rest packets as error packets.

```
○ sdhawan@DESKTOP-5G2787P:~/cn_project_1$ ./server.out 9999 0
```

```
Input parameter, mode_error : 0
Listening the messages
Received Packet is:
Start of Packet ID: 0xffff
Client ID: 0x1
Data: 0xffff1
Segment No.: 0x0
Length: 0x15
Payload: Data Packet Number: 1
End of Packet ID: 0xffff
```

```
Listening the messages
Received Packet is:
Start of Packet ID: 0xffff
Client ID: 0x1
Data: 0xffff1
Segment No.: 0xa
Length: 0x15
Payload: Data Packet Number: 2
End of Packet ID: 0xffff
```

```
Listening the messages
Received Packet is:
Start of Packet ID: 0xffff
Client ID: 0x1
Data: 0xffff1
Segment No.: 0x1
Length: 0x0
Payload: Data Packet Number: 3
End of Packet ID: 0xffff
```

```
Listening the messages
Received Packet is:
Start of Packet ID: 0xffff
Client ID: 0x1
Data: 0xffff1
Segment No.: 0x1
Length: 0x15
Payload: Data Packet Number: 4
End of Packet ID: 0xffff0
```

```
Listening the messages
Received Packet is:
Start of Packet ID: 0xffff
Client ID: 0x1
Data: 0xffff1
Segment No.: 0x0
Length: 0x15
Payload: Data Packet Number: 5
End of Packet ID: 0xffff
```

```
Listening the messages
```



Client logs: Here the 1st packet is correct, 2nd packet has the wrong segment number. 3rd packet has the wrong length. 4th packet is having wrong packet id. The 5th packet is having duplicate segment number.

So at client, we receive the acknowledgement and for rest for packets we receive the corresponding reject packet whose id is highlighted.

```

● sdhawan@DESKTOP-5G2787P:~/cn_project_1$ ./client.out localhost 9999 1
Input parameter, mode_error : 1
Got an ack.
Received Ack Packet is:
Start of Packet ID: 0xffff
client_id: 0x1
ack: 0xffff2
segment_no: 0x0
End of Packet ID: 0xffff

Got a reject packet ack.
Received Reject Packet is:
Start of Packet ID: 0xffff
client_id: 0x1
reject: 0xffff3
reject_sub_code: 0xffff4
segment_no: 0xa
End of Packet ID: 0xffff

Got a reject packet ack.
Received Reject Packet is:
Start of Packet ID: 0xffff
client_id: 0x1
reject: 0xffff3
reject_sub_code: 0xffff5
segment_no: 0x1
End of Packet ID: 0xffff

Got a reject packet ack.
Received Reject Packet is:
Start of Packet ID: 0xffff
client_id: 0x1
reject: 0xffff3
reject_sub_code: 0xffff6
segment_no: 0x1
End of Packet ID: 0xffff

Got a reject packet ack.
Received Reject Packet is:
Start of Packet ID: 0xffff
client_id: 0x1
reject: 0xffff3
reject_sub_code: 0xffff7
segment_no: 0x0
End of Packet ID: 0xffff

```

TestCase 3: Server running with mode_error =1 , where the server will not send response packet for messages received. So the client will keep on resending those packets 3 times and will exit if it does not receive. Timeout is set to 3 seconds as recommended.

Server logs: Showing packet is resent 3 times.

```

sdhawan@DESKTOP-5G2787P:~/cn_project_1$ ./server.out 9999 1
Input parameter, mode_error : 1
Listening the messages
Received Packet is:
Start of Packet ID: 0xffff
Client ID: 0x1
Data: 0xffff1
Segment No.: 0x0
Length: 0x15
Payload: Data Packet Number: 1
End of Packet ID: 0xffff

Listening the messages
Received Packet is:
Start of Packet ID: 0xffff
Client ID: 0x1
Data: 0xffff1
Segment No.: 0x0
Length: 0x15
Payload: Data Packet Number: 1
End of Packet ID: 0xffff

Listening the messages
Received Packet is:
Start of Packet ID: 0xffff
Client ID: 0x1
Data: 0xffff1
Segment No.: 0x0
Length: 0x15
Payload: Data Packet Number: 1
End of Packet ID: 0xffff

Listening the messages
Received Packet is:
Start of Packet ID: 0xffff
Client ID: 0x1
Data: 0xffff1
Segment No.: 0x0
Length: 0x15
Payload: Data Packet Number: 1
End of Packet ID: 0xffff

Listening the messages

```

Client Logs: Client code showing ack is not received so the packet is resent for 3 times. So it exits after some time.

```
● sdhawan@DESKTOP-5G2787P:~/cn_project_1$ ./client.out localhost 9999 0
Input parameter, mode_error : 0
Still waiting , resending again 1 time
Still waiting , resending again 2 time
Still waiting , resending again 3 time
Server does not respond
○ sdhawan@DESKTOP-5G2787P:~/cn_project_1$
```