

Assignment 04

Problem statement:

Write a program to simulate Go Back N and selective repeat modes of sliding window protocol in peer-to-peer mode.

Title : Go Back N and selective repeat protocol

Defination: Go Back N and selective repeat deals with resending of corrupted data.

Requirements:

OS: Windows 10 64 bit

language : python

concept : socket programming

IDE/editor : vscode.

Theory :

Go Back N and selective repeat protocols deal with transfer of frames over the network.

Go Back N:

In go back N protocol, the frames are sent in chunks without receiving acknowledgement. When the acknowledgement is received, the frame window shifts and next frame is sent; if a frame is lost

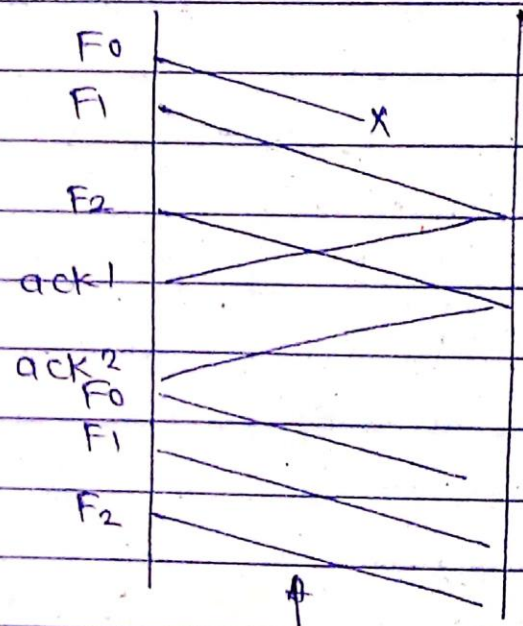
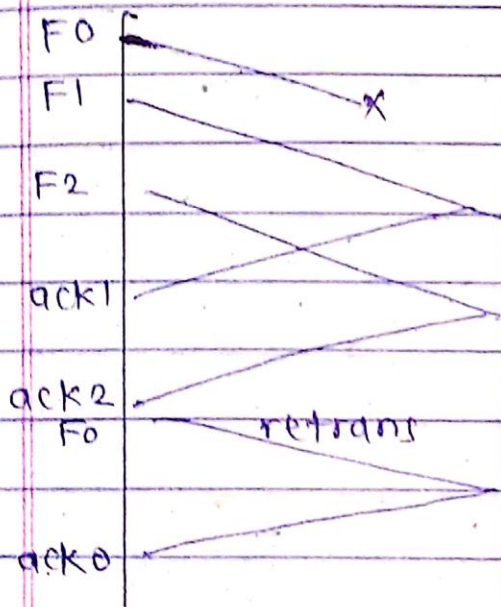
then even if acknowledgement for next frame is received, they are retransmitted. and the frames after lost one are discarded at receiver end.

Selective repeat :

In selective repeat only the lost frame is sent back and retransmitted. This can save bandwidth, as all the frames after the lost one need no retransmission.

Selective repeat

Go Back N



all frames retransmitted

Simulation

Case	Input	Exp O/p	Actual O/p	Result
I.	Go Back N [1, 2, 3, 4] bit 3 lost	3 and 4 retrans- mitted	Same as exp	pass
II.	Go Back N [0, 1, 2, 3] no bit lost	no retrans- mission needed	Same as exp	pass
III.	Selective repeat [0, 1, 2, 3, 4] 3 lost	only 3 retrans- mitted	Same as exp	pass

Conclusion:

Go Back N and selective repeat sliding window protocol implemented successfully using socket programming in python.

powershell


...

```
PS C:\Users\HP\Rupesh\PICT\TE SEM 1\CNS Lab\Assignment 04> python server.py
Listening...
connected to address ('192.168.43.233', 53041)
Case chosen is 1
Frame sent.
Acknowledgment recieved 1
Frame sent.
Acknowledgment recieved 2
Frame sent.
Frame sent.
Frame sent.
Acknowledgment recieved 3
Frame sent.
Acknowledgment recieved 4
Frame sent.
Acknowledgment recieved 5
Frame sent.
Acknowledgment recieved 6
Frame sent.
Acknowledgment recieved 7
Frame sent.
Acknowledgment recieved 8
Frame sent.
Acknowledgment recieved 9
Frame sent.
Acknowledgment recieved 10
PS C:\Users\HP\Rupesh\PICT\TE SEM 1\CNS Lab\Assignment 04> 
```

powershell

+ v □ 🔒 ...

```
PS C:\Users\HP\Rupesh\PICT\TE SEM 1\CNS Lab\Assignment 04> python client.py
Connected...
Enter number of frames to receive from server: 10
Enter the case(Error:1 Normal:0): 1
Frame recieved.
Acknowledgment sent.
Frame recieved.
Acknowledgment sent.
Frame recieved.
Frame recieved.
Acknowledgement sent.
Frame recieved.
Acknowledgement sent.
Frame recieved.
Acknowledgement sent.
Frame recieved.
Acknowledgement sent.
Frame recieved.
Acknowledgement sent.
Frame recieved.
Acknowledgement sent.
Frame recieved.
Acknowledgement sent.
Frame recieved.
Acknowledgement sent.
PS C:\Users\HP\Rupesh\PICT\TE SEM 1\CNS Lab\Assignment 04> 
```

 python

+ v □ ...

```
PS C:\Users\HP\Rupesh\PICT\TE SEM 1\CNS Lab\Assignment 04
\Selective Repeat> python server.py
```

```
Listening...
```

```
Connection established ('192.168.43.233', 50392)
```

```
Sending packet 0
```

```
Sending packet 1
```

```
Sending packet 2
```

```
Sending packet 3
```

```
Sending packet 4
```

```
Sending packet 5
```

```
Sending packet 6
```

```
Sending packet 7
```

```
Sending packet 8
```


```
Sending packet 9
```

```
Resending lost frame...
```

```
Lost frame sent
```

```
Frames sent: [0, 1, 2, 3, 4, 5, 6, 7, 8, 9]
```

```
PS C:\Users\HP\Rupesh\PICT\TE SEM 1\CNS Lab\Assignment 04
\Selective Repeat> █
```

 python

🔒 ...

```
PS C:\Users\HP\Rupesh\PICT\TE SEM 1\CNS Lab\Assignment 04
\Selective Repeat> python client.py
```

```
Connecting...
```

```
Connected to server.
```

```
Server sending 10 frames
```

```
Frame recieved 0
```

```
Frame recieved 1
```

```
Frame recieved 2
```

```
Frame recieved 3
```

```
Frame recieved 4
```

```
Frame recieved 5
```

```
Frame recieved 6
```

```
Frame recieved 7
```

```
Frame recieved 8
```

```
Frame recieved 9
```

```
Frames recieved: [0, 1, 2, 3, -1, 5, 6, 7, 8, 9]
```

```
Requesting server to resend frame...
```

```
Recieved lost frame
```

```
Frames recieved: [0, 1, 2, 3, 9, 5, 6, 7, 8, 9]
```

```
PS C:\Users\HP\Rupesh\PICT\TE SEM 1\CNS Lab\Assignment 04
\Selective Repeat> █
```