Exp No: 7

26/9/24

SLIDING WINDOW PROTOCOL

Aim:

Write a program to implement flow control at data link layer using Sliding Window Protocol.

Sender program features:

- Input window size from user.
- Input a text message from user.
- Consider 1 character per frame.
- Create a frame with following fields [Frame no, Data]
- Send the frames.
- Wait for acknowledgement from receiver.
- Reader a file called Receiver_Buffer.
- Check ACK field for Acknowledgement number.
- If acknowledgement number is as expected, send new set of frames accordingly, else if nack is received, resend the frames accordingly.

Receiver program features:

- Reader a file called Sender_buffer.
- Check the frame no.
- If the frame no. are as expected write appropiate ack no in the receiver-buffer file.

Code :

```
import time
import os
os.system('clear')
SB = open("Sender_Buffer.txt", "a+")
RB = open("Receiver_Buffer.txt", "a+")
SB.truncate(0)
RB.truncate(0)
ws = int(input("Enter Window size : "))
s = input("Enta Input String :")
s = list(s)
if (ws < len(s)):
    for i in range(0, len(s), ws):
        p = s[i : i+ws]
        y = s[i+ws : i+ws+ws]
        print("Sent -> "+ str(p))
        time.sleep(ws)
        print("Sending -> ", str(y))
        x = 0
        while (x < ws):
            time.sleep(2)
            if (len(p) > x):
                print("Ack ", p[x], " !")
                RB.write(p[x])
            time.sleep(1)
            if (len(y) > x):
                print("Sending -> ", y[x])
                SB.write(y[x])
            x += 1
else:
    print("-> The window size is too huge")
```

Input:

Enter Windows size : 4

Enter Input String: Hello

Output:

Sent -> ['H', 'e', 'l', 'l']

Sending -> ['o']

ACK ~ ! H !

Sending -> o

ACK ~ ! e !

ACK ~ ! l !

ACK ~ ! l !

Sent -> ['o']

Sending -> []

ACK ~ ! o !

Result:

Thus to implement flow control at data link layer using sliding window protocol has been implemented successfully.

19/11