

EXPERIMENT -7 SLIDING WINDOW PROTOCOL

AIM: Write a program to implement flow control at data link layer using SLIDING WINDOW PROTOCOL. Simulate the flow of frames from one node to another.

Create a sender program with following features:-

1. Input Window size from the user.
2. Input a Text message from the user.
3. Consider 1 character per frame.
4. Create a frame with following fields[Frame no., DATA].
5. Send the frames. [Print the output on screen and save it in a file called Sender_Buffer.]
6. Wait for the acknowledgement from the Receiver. [Induce delay in the program]
7. Read a file called Receiver_Buffer.
8. Check the ACK field for the Acknowledgement number.
9. If the Acknowledgement number is as expected, send new set of frames accordingly,
[overwrite the Sender_Buffer file with new frames] Else if NACK is received, resend the frames accordingly. [Overwrite the Sender_Buffer with an old frame].

Create a receiver file with following features

1. Read a file called Sender_Buffer.
2. Check the Frame no.
3. If the Frame no. are as expected, write the appropriate ACK no. in the Receiver_Buffer file.

Else write NACK no. in the Receiver_Buffer file.

NOTE:Induce error and verify the behaviour of the program. Manually Change the Frame no and Ack no in the files].

Student observation:

Write the code here:

```

from re import X
import time
import os
os.system('clear')
SB =open("Sender_Buffer.txt", "a+")
RB =open("Reciever_Buffer.txt" , "r+")
SB.truncate(0)
RB.truncate(0)
ws = int(input("Enter Window size:"))
s = input("Enter 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 large.")

```

Sample Input Output:

Enter Window size: 3

Enter Input String: HELLO

Sent->['H', 'E', 'L']

Sending-> ['L', 'O']

ACK~! H !

Sending-> L

ACK~! E !

Sending-> O

ACK~! L !

Result:

Hence the program to implement flow control at data link layer using SLIDING WINDOW PROTOCOL is written and executed successfully.