Practical - 3

18/9/25

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 which 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.
6) Wait for the acknowledgement number from the receiver.
7) Reader a file called Receiver_Buffer.
8) Check ACK field for the Acknowledgement number.

Create a receiver file with following features.

1) Reader 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.

STUDENT OBSERVATION:

```
def sliding_window(window_size, message):
    frames = [f"Frame {i}: {ch}" for i, ch in
enumerate(message, 1)]
    sent, ack = 0, 0

while ack < len(frames):
    window = frames[ack: ack + window_size]
print("\n Sending :", window)
    for f in window:
        frame_no = int(f.split(":")[0][5:])
        if frame_no % 5 == 0:
            print(f" Receiver got error
in {f} → Sending NACK {frame_no}
```

```
        print(f"Resending {ty...")
        print(f"Receiver got {ty} → sending
ACK {frame - no}")
    else:
        print(f"Receiver got {ty} →
                    sending ACK {frame - no}")
        ack += 1
w = int(input("Enter window size:"))
msg = input("Enter a text message:")
sliding - window(w, msg)
```

Sample I/P:

Enter window size: 3

Enter a text message: HELLO.

Sample O/P:

Sending : ['Frame 1: H', Frame 2: E', Frame 3: L']

Receiver got Frame 1: H → Sending ACK1

Receiver got Frame 2: E → Sending ACK2

Receiver got Frame 3: L → Sending ACK3.

Sending : ['Frame 4: L', 'Frame 5: O']

Receiver got Frame 4: L → Sending ACK4.

Receiver got error in Frame 5: O →

Resending Frame 5: O Sending NACK5

Receiver got Frame 5: O → Sending ACK5.

Result :-

Thus the above experiment is complet
successfully.

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