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Flow Control at Data Link Layer

Aim:

Write a program to implement flow control as data link layer using sliding window protocol. simulate the flow of control frames from one node to another

Features:

→ Input window size and message
→ sends window size frame at a time
→ writes frames to sender buffer
→ reciever reads frames, sends ACK or NACK to reciever buffer.
→ sender reads ACK / NACK and continues or resends frames.
→ You can manually edit the files to simulate errors.

CODE:

```
import time
import random
class sender:
    def __init__ (self, total_frames, window_size):
        self.total_frames = total_frames
        self.window_size = window.size
        self.base = 0
        self.next_seq = 0
```

```
def send_frames(self):
    printf"\n[sender] Total frames to send
        {self.total_frames}"
    while self.base < self.total_frames:
    while self.next.seq<seq.base+
        seq.window size.
    and self.next_seq < self.total_frames
        print(f[sender] sending frame
            {self.next_seq})

def ack_recieved(self_ack):
    printf("[sender] Acknowledgement
        recieved
        for frame {ack}")
    if ack >= self.base:
        self.base = ack+1

class Receiver:
    def receiver.frame(self, frame_no,
        sender):
    if random.choice([True,False]):
        printf(f"[Receiver] Received
            Frame {frame_no}")
        sender.ack_received(frame_no)
    else:
        print(f"[Receiver] Frame {frame
            lost(No Ack sent)")
```

```
if __name__ == "__main__":
    total_frames = 5
    window_size = 3
    sender = sender(total_frames, window_size)
    receiver = receiver()
    sender.send_frames(receiver)
```

OUTPUT:

```
Enter total number of frames : 5
Enter window size : 3
[sender] Total Frames to send : 5
[sender] sending frame 0
[sender] sending frame 1
[sender] sending frame 2
[Receiver] successfully received frames 0 to 2
[sender] sending frame 3
[sender] sending frame 4
[Receiver] Frame 4 lost or corrupted.
[sender] Timeout Resending window from frame 3.
[sender] sending frame 3
[sender] sending frame 4
[Receiver] Acknowledgement received for frame 4.
Transmission completed.
```

Result:

sliding window protocol is executed successfully.