Assignment 6

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Title: Write a program to simulate Go back N Sliding Window Protocol in peer-to-peer mode. (attach PDF contains the description of the Go back N and Selective Repeat Protocols, Program and output)

Theory:

Go-Back-N Automatic Repeat request (ARQ) is a protocol used for reliable data transmission in the data link layer of computer networks. Operating on a sliding window principle, it allows the sender to transmit multiple frames before receiving acknowledgments from the receiver. The window size determines the number of unacknowledged frames allowed. If a frame is lost or corrupted, the entire window, starting from the problematic frame, is retransmitted.

The receiver sends acknowledgments containing information about the next expected frame, facilitating sender-side tracking. A timer mechanism triggers frame retransmission if acknowledgments are not received within a specified time. While efficient in stable network conditions, Go-Back-N ARQ may face inefficiencies in environments with frequent frame losses. Overall, it offers a straightforward yet effective approach to ensuring data reliability in point-to-point communication scenarios.

Program:

```
if __name__ == "__main__":
    windowSize = int(input("Enter number of frames "))
    currentFrame = 0
    ack = 0
    while(True):
        for idx in range(windowSize):
            print(f"Frame {currentFrame} transmitted")
            currentFrame+=1
            if(currentFrame ==  windowSize):
                break

        ack = int(input("Enter acknowledgement of received frame"))

        if(ack == windowSize):
            break
```

```
        else:
            currentFrame = ack
```

Output:

```
.py
Enter number of frames
4
Frame 0 transmitted
Frame 1 transmitted
Frame 2 transmitted
Frame 3 transmitted
Enter acknowledgement of received frame
0
Frame 0 transmitted
Frame 1 transmitted
Frame 2 transmitted
Frame 3 transmitted
Enter acknowledgement of received frame
2
Frame 2 transmitted
Frame 3 transmitted
Enter acknowledgement of received frame
3
Frame 3 transmitted
Enter acknowledgement of received frame
1
Frame 1 transmitted
Frame 2 transmitted
Frame 3 transmitted
Enter acknowledgement of received frame
4
```