Assignment 7

Name: Hitesh Tolani

Roll no: 73

Class: SY-AIDS-A

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

Theory:

Selective Repeat Automatic Repeat reQuest (ARQ) is a reliable data transmission protocol used in computer networks to ensure the accurate delivery of data over unreliable communication channels. Unlike the Go-Back-N ARQ protocol, Selective Repeat allows for more efficient error recovery by retransmitting only the frames that have been identified as lost or corrupted.

In the Selective Repeat ARQ protocol, both the sender and the receiver maintain a window of frames. The sender can transmit multiple frames before receiving acknowledgments from the receiver. Each frame is individually acknowledged by the receiver, allowing for a more granular error detection mechanism. If a frame is lost or found to be corrupted, only that specific frame is retransmitted, reducing unnecessary retransmission of unaffected frames.

Program:

```python
if __name__ == "__main__":
    windowSize = int(input("Enter number of frames\n"))
    ack = 0

    for frame in range(windowSize):
        print(f"Frame {frame} transmitted")

    while(True):

        ack = int(input("Enter negative acknowledgement for not received
frame\n"))

        if(ack == -1):
            break

        print(f"Frame {ack} transmitted")
```

Output:

```
Enter number of frames
4
Frame 0 transmitted
Frame 1 transmitted
Frame 2 transmitted
Frame 3 transmitted
Enter negative acknowledgement for not received frame
2
Frame 2 transmitted
Enter negative acknowledgement for not received frame
3
Frame 3 transmitted
Enter negative acknowledgement for not received frame
3
Frame 3 transmitted
Enter negative acknowledgement for not received frame
-1
```