EXPERIMENT-6

Write a Program to implement Sliding window protocol for Go back N.

Sliding Window Protocol

The Sliding Window Protocol is a method used in computer networks to ensure reliable and efficient data transmission between sender and receiver**.**

Key Concepts:

- **Window Size:** The number of frames that can be sent before needing an acknowledgment (ACK).
- **Acknowledgment (ACK)**: A signal sent by the receiver to inform the sender that a frame was received correctly.
- **Sliding Window**: After receiving an ACK, the sender **"slides"** the window forward to send new frames.

How it works:

1. The sender transmits up to window_size frames without waiting for ACKs.
2. The receiver sends ACKs for the frames received.
3. If an ACK is received, the window slides forward, and new frames can be sent.
4. If an ACK is **not received** (due to loss/error), the sender retransmits the unacknowledged frames.

Program

```
#include <stdio.h>
void main()
{
   int window_size, total_frames;
   int sent = 0, ack, i;
   clrscr();
                        // Input from user
   printf("Enter window size: ");
   scanf("%d", &window_size);
   printf("Enter total number of frames to send: ");
   scanf("%d", &total_frames);
```

```
    while (sent < total_frames)
    {
        // Send frames in the current window
        for (i = 0; i < window_size && sent < total_frames; i++)
        {
            printf("Frame %d has been transmitted.\n", sent);
            sent++;
        }
        // Receive ACK
        printf("Enter last ACK received (0 to %d): ", total_frames - 1);
        scanf("%d", &ack);
        // If ACK is valid, move window; else, go back
        if (ack >= 0 && ack < total_frames)
            sent = ack + 1;
        else
        {
            printf("Invalid ACK. Resending current window.\n");
            sent -= i;  // Go back to start of current window
        }
        printf("\n");
    }
    printf("All frames sent and acknowledged.\n");
    getch();
}
```

Output