

EXPERIMENT-8

Write a Program to implement Stop and Wait Protocol.

Program

```
#include <stdio.h>
#include <stdlib.h>
#include <time.h>

void main()
{
    int frame_count, simulate_loss, i, ack, send_seq = 0;
    char frames[10][100];
    clrscr();
    printf("Enter number of frames to send: ");
    scanf("%d", &frame_count);
    for (i = 0; i < frame_count; i++)
    {
        printf("Enter data for frame %d: ", i);
        scanf("%s", frames[i]);
    }
    i = 0;
    while (i < frame_count)
    {
        printf("\n[Sender] Sending Frame %d: \"%s\" with Seq # %d\n", i, frames[i], send_seq);
        sleep(1); // simulate delay
        // Simulate receiver behavior
        simulate_loss = rand() % 5; // 0 to 4 chance of ACK loss
        if (simulate_loss == 0)
        {
            printf("[Sender] ACK lost or corrupted! Resending Frame %d...\n", i);
            continue;
        }
        // Receiver receives and sends correct ACK
        ack = send_seq;
        printf("[Receiver] Received Frame %d. Sending ACK # %d\n", i, ack);
        sleep(1);
        // Sender receives correct ACK
```

```

if (ack == send_seq)
{
    printf("[Sender] Received ACK #%d. Proceeding to next frame...\n", ack);
    send_seq = 1 - send_seq; // toggle between 0 and 1
    i++; // move to next frame
}
else
{
    printf("[Sender] Wrong ACK! Resending Frame %d...\n", i);
}
}
printf("\nAll frames sent successfully.\n");
getch();
}

```

Output

```

DOSBox 0.74, Cpu speed: max 100% cycles, Frameskip 0, Program: TC
Enter number of frames to send: 3
Enter data for frame 0: hi
Enter data for frame 1: this
Enter data for frame 2: tec

[Sender] Sending Frame 0: "hi" with Seq #0
[Receiver] Received Frame 0. Sending ACK #0
[Sender] Received ACK #0. Proceeding to next frame...

[Sender] Sending Frame 1: "this" with Seq #1
[Sender] ACK lost or corrupted! Resending Frame 1...

[Sender] Sending Frame 1: "this" with Seq #1
[Receiver] Received Frame 1. Sending ACK #1
[Sender] Received ACK #1. Proceeding to next frame...

[Sender] Sending Frame 2: "tec" with Seq #0
[Sender] ACK lost or corrupted! Resending Frame 2...

[Sender] Sending Frame 2: "tec" with Seq #0
[Receiver] Received Frame 2. Sending ACK #0
[Sender] Received ACK #0. Proceeding to next frame...

All frames sent successfully.

```