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// **Roll No: 3**

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

#define WINDOW_SIZE 4
#define TOTAL_FRAMES 10

void sendFrames(int* frames, int frameCount) {
    printf("Sending frames: ");
    for (int i = 0; i < frameCount; i++)
        { printf("%d ", frames[i]);
    }
    printf("\n");
}

int receiveFrames(int* frames, int frameCount) {
    srand(time(0));
    int ack = -1;

    for (int i = 0; i < frameCount; i++)
        { if ((rand() % 10) < 8) {
            printf("Acknowledgment received for frame %d\n", frames[i]);
            ack = frames[i];
        } else {
            printf("Acknowledgment lost for frame %d\n", frames[i]);
            break;
        }
    }

    return ack;
}

int main() {
    int
    frames[TOTAL_FRAMES];
    int base = 0;
    int nextFrame = 0;

    for (int i = 0; i < TOTAL_FRAMES; i++) {
        frames[i] = i;
    }

    while (base < TOTAL_FRAMES)
        { int frameCount = 0;
```

```c
        for (int i = nextFrame; i < base + WINDOW_SIZE && i < TOTAL_FRAMES; i++) {
            frameCount++;
        }

        sendFrames(&frames[nextFrame], frameCount);

        sleep(1);  // Simulate network delay
        int ack = receiveFrames(&frames[nextFrame], frameCount);

        if (ack == -1) {
            printf("No acknowledgments received, resending frames from %d\n", base);
        } else {
            base = ack + 1;
            nextFrame = base;
            printf("Sliding window to frame %d\n", base);
        }

        printf("\n");
    }

    printf("All frames sent and acknowledged.\n");

    return 0;
}
```

Output :

```
■ E:\syco BTECH\cn11.exe
Sending frames: 0 1 2 3
Acknowledgment received for frame 0
Acknowledgment received for frame 1
Acknowledgment received for frame 2
Acknowledgment received for frame 3
Sliding window to frame 4

Sending frames: 4 5 6 7
Acknowledgment lost for frame 4
No acknowledgments received, resending frames from 4

Sending frames: 4 5 6 7
Acknowledgment received for frame 4
Acknowledgment received for frame 5
Acknowledgment received for frame 6
Acknowledgment received for frame 7
Sliding window to frame 8

Sending frames: 8 9
Acknowledgment received for frame 8
Acknowledgment received for frame 9
Sliding window to frame 10

All frames sent and acknowledged.

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Process exited after 5.316 seconds with return value 0
Press any key to continue . . .
```