

# Sliding Window Programs

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These programs assume that the number of frames that has to be sent is equal to the window size. i.e., if **window size = 5**, frames sent will be **frame1, frame2, frame3, frame4** and **frame5**. Then the program terminates.

Note: If there are no more frames to receive an acknowledgement, provide the input as **-1**.

## Go Back N ARQ

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eg, if **frame3** doesn't receive an acknowledgement, then **frame3, frame4, frame5** will be retransmitted.

```
#include <stdio.h>
void main() {
    int i, windowsize, retransmit;
    printf("Enter the window size: ");
    scanf("%d", &windowsize);
    for (i=1; i<=windowsize; i++) {
        printf("frame%d is transmitted\n", i);
    }
    while (1) {
        printf("Enter the frame that didn't receive ack: ");
        scanf("%d", &retransmit);
        if (retransmit != -1) {
            for (i=retransmit; i<=windowsize; i++) {
                printf("frame%d is retransmitted\n", i);
            }
        }
        else {
            break;
        }
    }
}
```

OUTPUT

Enter the window size: 5

```
frame1 is transmitted
frame2 is transmitted
frame3 is transmitted
frame4 is transmitted
frame5 is transmitted
Enter the frame that didn't receive ack: 4
frame4 is retransmitted
frame5 is retransmitted
Enter the frame that didn't receive ack: -1
```

## Selective Repeat ARQ

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eg, if **frame3** doesn't receive an acknowledgement, then only **frame3** is retransmitted.

```
#include <stdio.h>
void main() {
    int i, window size, retransmit;
    printf("Enter the window size: ");
    scanf("%d", &window size);
    for (i=1; i<=window size; i++) {
        printf("frame%d is transmitted\n", i);
    }
    while (1) {
        printf("Enter the frame that didn't receive ack: ");
        scanf("%d", &retransmit);
        if (retransmit != -1) {
            printf("frame%d is retransmitted\n", retransmit);
        }
        else {
            break;
        }
    }
}
```

### OUTPUT

```
Enter the window size: 5
frame1 is transmitted
frame2 is transmitted
frame3 is transmitted
frame4 is transmitted
frame5 is transmitted
Enter the frame that didn't receive ack: 3
```

```
frame3 is retransmitted
Enter the frame that didn't receive ack: 4
frame4 is retransmitted
Enter the frame that didn't receive ack: -1
```

## Stop and Wait ARQ

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eg, if **frame1** is sent successfully and receives an acknowledgement, **frame2** can be sent. If **frame2** receives acknowledgement, **frame3** can be sent and so on. Only one frame is sent at a time.

```
#include <stdio.h>
void main() {
    int framesize, response, i=1;
    printf("Enter the number of frames to be sent: ");
    scanf("%d", &framesize);
    while (1) {
        printf("frame%d is transmitted\n", i);
        printf("Received acknowledgement? (0/1): ");
        scanf("%d", &response);
        if (response == 1) {
            i++;
        }
        if (i == framesize+1) {
            break;
        }
    }
}
```

### OUTPUT

```
Enter the number of frames to be sent: 5
frame1 is transmitted
Received acknowledgement? (0/1): 1
frame2 is transmitted
Received acknowledgement? (0/1): 1
frame3 is transmitted
Received acknowledgement? (0/1): 0
frame3 is transmitted
Received acknowledgement? (0/1): 1
frame4 is transmitted
Received acknowledgement? (0/1): 0
frame4 is transmitted
```

Received acknowledgement? (0/1): 1

frame5 is transmitted

Received acknowledgement? (0/1): 1