Program: Go Back N Flow Control Protocol

Code:

```c
#include <stdio.h>

int main()

{

 int total_frames, window_size, i, error_frame, k = 1, count = 0, ack_rec = 0;
printf("\n Niyati's program for Go Back N protocol ");
 printf("Enter the number of frames: ");
 scanf("%d", &total_frames);
 printf("Enter the Window Size: ");
 scanf("%d", &window_size);
 printf("\n");

 // k-no. of frames for which ack. is received
 while (ack_rec != total_frames)
 {
  for (i = ack_rec + 1; i <= ack_rec + window_size && i != total_frames + 1; i++)
  {
   printf("Send Frame %d \n", i);
   count++;
  }
  printf("\n");

  printf("Enter Frame number that has error(In case of no error,enter 100): ");
  scanf("%d", &error_frame);

  if (error_frame == 100)
  {
   for (i = k; i < k + window_size && i != total_frames + 1; i++)
   {
```

```c
            printf("Acknowledgement for Frame %d \n", i);
            ack_rec++;
        }
        k = i;
        printf("\n");
    }


    else
    {
        for (i = k; i < error_frame && i != total_frames + 1; i++)
        {
            printf("Acknowledgement for Frame %d \n", i);
            ack_rec++;
        }


        k = i;


        printf("Frame %d Not received \n", error_frame);
        printf("Retransmitting Window \n");


        printf("\n");
    }
}
printf("\n Total Transmissions:%d", count);
return 0;
}
```

Output :

Niyati's program for Go Back N protocol

Enter the number of frames: 10

Enter the Window Size: 3

Send Frame 1

Send Frame 2

Send Frame 3

Enter Frame number that has error (In case of no error, enter 100): 2

Acknowledgement for Frame 1

Frame 2 Not received

Retransmitting Window

Send Frame 2

Send Frame 3

Send Frame 4

Enter Frame number that has error (In case of no error, enter 100): 100

Acknowledgement for Frame 2

Acknowledgement for Frame 3

Acknowledgement for Frame 4

Send Frame 5

Send Frame 6

Send Frame 7

Enter Frame number that has error(In case of no error, enter 100): 6

Acknowledgement for Frame 5

Frame 6 Not received

Retransmitting Window

Send Frame 6

Send Frame 7

Send Frame 8

Enter Frame number that has error (In case of no error, enter 100): 100

Acknowledgement for Frame 6

Acknowledgement for Frame 7

Acknowledgement for Frame 8

Send Frame 9

Send Frame 10

Enter Frame number that has error (In case of no error, enter 100): 10

Acknowledgement for Frame 9

Frame 10 Not received

Retransmitting Window

Send Frame 10

Enter Frame number that has error (In case of no error, enter 100): 100

Acknowledgement for Frame 10

 Total Transmissions:15