PROG 5

```
import java.util.LinkedList;
import java.util.Queue;
import java.util.Random;
import java.util.Scanner;
class SlidingWindowProtocol
{
private int windowSize;
private int numFrames;
private Queue<Integer> window;
  public SlidingWindowProtocol(int windowSize, int numFrames)
 {
 this.windowSize = windowSize;
 this.numFrames = numFrames;
 this.window = new LinkedList<>();
 }
 public void sendFrames()
{
int currentFrame = 1;
Random random = new Random();
while (currentFrame <= numFrames)
 {
 while (window.size() < windowSize && currentFrame <= numFrames)
 {
  System.out.println("Sending Frame " + currentFrame);
   window.add(currentFrame);
   currentFrame++;
  }
```

```
 if (!window.isEmpty())
{
 int ackFrame = window.peek();
 boolean isLost = random.nextBoolean();
 if (isLost)
 {
 System.out.println("ACK for Frame " + ackFrame + " lost.Retransmitting window...");
retransmitWindow();
} else {
 System.out.println("ACK received for Frame " + ackFrame);
 window.poll();
 } } }
 System.out.println("All frames sent successfully.");
 }
private void retransmitWindow()
 { for (int frame : window) {
 System.out.println("Retransmitting Frame " + frame);
 }}
 public static void main(String[] args){
 Scanner scanner = new Scanner(System.in);
 System.out.print("Enter the number of frames to be sent: ");
 int numFrames = scanner.nextInt();
 System.out.print("Enter the window size: ");
 int windowSize = scanner.nextInt();
 SlidingWindowProtocol protocol = new
SlidingWindowProtocol(windowSize, numFrames);
 protocol.sendFrames();
 } }
```