COMPUTER NETWORKS
LAB 5

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Implement Sliding window protocol with Go- Back N selective repeat approaches.

Go-Back N:

In this protocol, if there is any error in any frame of the data receiver will ask the sender to resend the whole data.

CODE:

```
import java.io.*;

public class GoBackN
 {
   public static void main(String args[]) throws IOException
{
       BufferedReader br = new BufferedReader(new
InputStreamReader(System.in));
       System.out.println("Please enter the Window Size: ");
       int window = Integer.parseInt(br.readLine());
       boolean loop = true;
       int sent = 0;

       while (loop)
 {
          for (int i = 0; i < window; i++)
 {
             System.out.println("Frame " + sent + " has been transmitted.");
             sent++;
             if (sent == window)
                break;
          }

          System.out.println("Please enter the last Acknowledgement received: ");
```

```
            int ack = Integer.parseInt(br.readLine());
            if (ack == window)
                loop = false;
            else
                sent = ack;
        }
    }
}
```

OUTPUT:

```
PS C:\Users\kvsth\Desktop\Term 5\Comp Networks\Lab codes>  & 'C:\Program Files\Java\jdk-19\bin\java.exe' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\kvsth\AppData\Roaming\Code\User\workspaceStorage\29c088be80be36055bebe33a944adc7d\redhat.java\jdt_ws\Lab codes_6bf476f1\bin' 'GoBackN'
Please enter the Window Size:
5
Frame 0 has been transmitted.
Frame 1 has been transmitted.
Frame 2 has been transmitted.
Frame 3 has been transmitted.
Frame 4 has been transmitted.
Please enter the last Acknowledgement received:
3
Frame 3 has been transmitted.
Frame 4 has been transmitted.
Please enter the last Acknowledgement received:
4
Frame 4 has been transmitted.
Please enter the last Acknowledgement received:
```

Selective Repeat approach :

In this protocol, the receiver will ask the sender to resend only those frames or packets which have an error not the whole data, unlike the Go-Back N protocol.

CODE:

```
import java. util.*;

public class SelRep
{
   public static void main(String[] args)
 {
       Scanner sc = new Scanner(System.in);
       System.out.println("Please enter the Window Size: ");
       int window = sc.nextInt();
       System.out.println("Enter number of frames to be sent : ");
       int n = sc.nextInt();
       for (int j = 0; j < n; j++)
 {
           System.out.println("Frame " + j + " has been transmitted");
       }

       for (int k = 0; k < window; k++)
 {
           System.out.println("Enter 1 if any frames are missing ");
           System.out.println("Enter 0 if no frames are missing ");
           int ans = sc.nextInt();
           if (ans == 1)
 {
               System.out.println("enter the unreceived Acknowledgement number : ");
               int a = sc.nextInt();
               System.out.println("Frame " + a + " has been transmitted.");
           }
else
{
               break;
           }
       }
   }
}
```

OUTPUT:

```
PS C:\Users\kvsth\Desktop\Term 5\Comp Networks\Lab codes>  & 'C:\Program Files\Java\jdk-19\bin\java.exe' '-XX:+ShowCodeDetailsInExceptionMe
ssages' '-cp' 'C:\Users\kvsth\AppData\Roaming\Code\User\workspaceStorage\29c088be80be36055bebe33a944adc7d\redhat.java\jdt_ws\Lab codes_6bf4
76f1\bin' 'SelRep'
Please enter the Window Size:
4
Enter number of frames to be sent :
8
Frame 0 has been transmitted
Frame 1 has been transmitted
Frame 2 has been transmitted
Frame 3 has been transmitted
Frame 4 has been transmitted
Frame 5 has been transmitted
Frame 6 has been transmitted
Frame 7 has been transmitted
Enter 1 if any frames are missing
Enter 0 if no frames are missing
1
enter the unreceived Acknowledgement number :
3
Frame 3 has been transmitted.
Enter 1 if any frames are missing
Enter 0 if no frames are missing
1
enter the unreceived Acknowledgement number :
7
Frame 7 has been transmitted.
Enter 1 if any frames are missing
Enter 0 if no frames are missing
0
PS C:\Users\kvsth\Desktop\Term 5\Comp Networks\Lab codes>
```