

Practical 3

Date:- 11/08/21

Roll No:- 19BCE248

Course No:- 2CS502 Computer Networks

AIM: To implement Byte and Bit stuffing techniques.

Byte Stuffing:

```
import java.util.*;
class ByteStuffing{
    public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter Flag String");
        String flag=sc.next();
        System.out.println("Enter Esc String");
        String esc=sc.next();
        System.out.println("Enter no. of Frames");
        int n=sc.nextInt();
        String[] data=new String[n];
        for (int i=0; i<n;i++ ) {
            data[i]=sc.next();
        }
        List<String> send=new ArrayList<>();
        send.add(flag);
        for (String s:data) {
            if (s.equals(flag) || s.equals(esc)) {
                send.add(esc);
                send.add(s);
            }else {
                send.add(s);
            }
        }
        send.add(flag);
        System.out.println("=====Data with byte stuffing=====");
        for(String s:send)
            System.out.print(s+" ");
        System.out.println("");
        StringBuffer received=new StringBuffer();
        send.remove(0);
        send.remove(send.size()-1);
        for(int i=0;i<send.size();i++){
            String s=send.get(i);
            if (s.equals(esc)) {
                received.append(send.get(i+1)+" ");
            }
        }
    }
}
```

```

        i++;
    }else{
        received.append(s+" ");
    }

}
System.out.println("====Data decoded at Reciever end====");
System.out.println(received);
}
}

```

Output:

```

Enter Flag String
flag
Enter Esc String
esc
Enter no. of Frames
10
hello
how
flag
are
esc
esc
you
fine
esc
bye
====Data with byte stuffing====
flag hello how esc flag are esc esc esc esc you fine esc esc bye flag
====Data decoded at Reciever end====
hello how flag are esc esc you fine esc bye

```

BitStuffing:

```

import java.util.*;
class BitStuffing{
    public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter Input Data:");
        String input=sc.next();
        char[] c=input.toCharArray();
        int ct=0;
        StringBuffer send=new StringBuffer();
        for (char ch:c) {
            if(ct==5){
                send.append("0");
            }
        }
    }
}

```

```

        ct=0;
    }
    if (ch=='1') {
        ct++;
        send.append("1");
    }else{
        ct=0;
        send.append("0");
    }
}
System.out.println("=====Data with bit stuffing=====");
System.out.println(send);
ct=0;
StringBuffer recieved=new StringBuffer();
for (char ch:(new String(send)).toCharArray()) {
    if(ct==5){
        ct=0;
        continue;
    }
    if (ch=='1') {
        ct++;
        recieved.append("1");
    }else{
        ct=0;
        recieved.append("0");
    }
}

System.out.println("=====Data decoded at Reciever end=====");
System.out.println(recieved);
}
}

```

Output:

```

Enter Input Data:
1001111100101011111111111001111110111111110000011111010101111111
=====Data with bit stuffing=====
1001111100010101111110111110100111111011111110000001111100101011111011
=====Data decoded at Reciever end=====
100111110010101011111111111001111110111111110000011111010101111111

```