

3. Define $T(x) = B(x) - R(x)$
 $(T(x)/G(x) \Rightarrow \text{remainder } 0)$
4. Transmit T , the bit string corresponding to $T(x)$.
 Let T' represent the bit stream the receiver gets and $T'(x)$ the associated polynomial. The receiver divides $T'(x)$ by $G(x)$. If there is a 0 remainder, the receiver concludes $T = T'$ and no error occurred otherwise, the receiver concludes an error occurred and requires a retransmission

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/* CRC */
import java.util.*;
public class Crc
{
    void div(int a[],int k)
    {
        int gp[]={ 1,0,0,0,1,0,0,0,0,0,0,1,0,0,0,0,1};
        int count=0;
        for(int i=0;i<k;i++)
        {
            if(a[i]==gp[0])
            {
                for(int j=i;j<17+i;j++)
                {
                    a[j]=a[j]^gp[count++];
                }
                count=0;
            }
        }
    }
    public static void main(String args[])
    {
        int a[]=new int[100];
        int b[]=new int[100];
        int len,k;
        Crc ob=new Crc();
        System.out.println("Enter the length of Data Frame:");
        Scanner sc=new Scanner(System.in);
        len=sc.nextInt();
        int flag=0;
        System.out.println("Enter the Message:");
        for(int i=0;i<len;i++)
        {
            a[i]=sc.nextInt();
        }
    }
}

```

```
for(int i=0;i<16;i++)
{
    a[len++]=0;
}
k=len-16;
for(int i=0;i<len;i++)
{
    b[i]=a[i];
}
ob.div(a,k);
for(int i=0;i<len;i++)
    a[i]=a[i]^b[i];
System.out.println("Data to be transmitted: ");
for(int i=0;i<len;i++)
{
    System.out.print(a[i]+" ");
}
System.out.println();
System.out.println("Enter the Reveived Data: ");
for(int i=0;i<len;i++)
{
    a[i]=sc.nextInt();
}
ob.div(a, k);
for(int i=0;i<len;i++)
{
    if(a[i]!=0)
    {
        flag=1;
        break;
    }
}
if(flag==1)
    System.out.println("error in data");
else
    System.out.println("no error");
}
```

Output1

Enter the length of Data Frame:

5

Enter the Message:

1 1 1 0 1

Data to be transmitted: