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Computer Networks Lab

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4th Sem CSE

End-Sem Lab Practical

Aim: Write a program for error detecting code using CRC-CCITT (16-bits)

Code:

```
import java.io.*;

class Crc
{
    public static void main (String args[]) throws IOException
    {
        BufferedReader br = new BufferedReader (new InputStreamReader (System.in));

        System.out.println (" Kunal Sachdeva");
        System.out.println (" 19115045");

        int [] data, [] div, [] divisor, [] rem, [] crc;
        int data-bits, divisor-bits, tot-length;

        System.out.println ("Enter name of data bits:");
        data-bits = Integer.parseInt (br.readLine());
        data = new int [data-bits];

        System.out.println ("Enter data bits:");
        for (int i = 0; i < data-bits; i++)
            data[i] = Integer.parseInt (br.readLine());

        System.out.println ("Enter number of bits in divisor:");
```

```

divisor_bits = Integer.parseInt(br.readLine());
divisor = new int[divisor_bits];
System.out.println("Enter Divisor bits:");
for (int i = 0; i < divisor_bits; i++)
{
    divisor[i] = Integer.parseInt(br.readLine());
}
tot_length = data_bits + divisor_bits;
div = new int[tot_length];
rem = new int[tot_length];
crc = new int[tot_length];

```

// CRC Generation

```

for (int i = 0; i < data.length; i++)
    div[i] = data[i];
System.out.print("Dividend (after appending 0's) are:");
for (int i = 0; i < div.length; i++)
    System.out.print(div[i]);
System.out.println();
for (int j = 0; j < div.length; j++)
    rem[j] = div[j];
rem = divide(div, divisor, rem);
for (int i = 0; i < div.length; i++)
    crc[i] = div[i] ^ rem[i];
System.out.println();
System.out.println("CRC code:");
for (int i = 0; i < crc.length; i++)
    System.out.print(crc[i]);

```

```
System.out.println();
```

```
System.out.println("Enter CRC code of " + tot.length +  
" bits: ");
```

```
for (int i = 0; i < crc.length; i++)
```

```
    crc[i] = Integer.parseInt(br.readLine());
```

```
for (int i = 0; i < crc.length; i++)
```

```
    rem[i] = crc[i];
```

```
rem = divide(crc, divisor, rem);
```

```
for (int i = 0; i < rem.length; i++)
```

```
{
```

```
    if (rem[i] != 0)
```

```
    {
```

```
        System.out.println("Error");
```

```
        break;
```

```
    }
```

```
    if (i == rem.length - 1)
```

```
        System.out.println("No error");
```

```
}
```

```
System.out.println("Thank You...");
```

```
}
```

```
static int[] divide(int div[], int divisor[], int rem[])
```

```
{
```

```
    int cur = 0;
```

```
    while (true)
```

```
    {
```

```
        for (int i = 0; i < divisor.length; i++)
```

```
            rem[cur + i] = (rem[cur + i] ^ divisor[i]);
```

```

while (rem[cur] == 0 && cur != rem.length - 1)
    cur++;
if ((rem.length - cur) < divisor.length)
    break;
}
return rem;
}
}

```

Output:

```

BlueJ: Terminal Window - idk
Options
Kunal Sachdeva
Roll Number 19115045
Enter number of data bits :
5
Enter data bits :
1
1
0
0
1
Enter number of bits in divisor :
2
Enter Divisor bits :
1
0
Dividend (after appending 0's) are : 1100100

CRC code :
1100100
Enter CRC code of 7 bits :
1
1
0
0
1
0
0
No Error
THANK YOU.....)
Can only enter input while your programming is running

```