

## WEEK 13

Write a program for error detecting code using CRC

## CRC Implementation

Write a program for error detecting code using CRC - CCITT

C-code :-

```
#include <stdio.h>
#include <string.h>
#define N sizeof(poly)
```

```
char data[30];
char check_value[30];
char poly[10];
int data_length, i, j;
```

Void XOR

```
{
    for (j=1; j<N; j++)
        check_value[j] = (check_value[j] - poly[j] ?
                                '0' : '1');
}
```

Void receiver()

```
{
    printf("Enter the received data");
    scanf("%s", data);
    printf("Data received: %s", data);
    crc();
}
```

```

printf("\n Error detected");
else
    printf("\n no error detected\n");
}
void crc()
{
    for (i=0; i<N; i++)
        check_value[i] = data[i];
    do {
        if (check_value[0] == '1')
            XOR();
        for (j=0; j<N-1; j++)
            check_value[j] = check_value[j+1];
        check_value[j] = data[i++];
    } while (i <= data_length + N - 1);
}

```

```

int main()
{
    printf("\n Enter data to be transmitted : ");
    scanf("%s", data);
    printf("\n Enter the divisor polynomial : ");
    scanf("%s", poly);
    data_length = strlen(data);
    for (i = data_length; i < data_length + N - 1; i++)
        data[i] = '0';
    printf("\n Data padded with n-1 zeros: %s",

```



```

printf ("In Final dataword to be sent: %s" data);
receiver();
return 0;
}

```

O/p :-

Enter data to be transmitted: 101010

Enter the divisor polynomial: 1011

Data padded with  $n-1$  zeros: 101010000

CRC value is: 001

Final codeword to be sent: 101010001

Enter the received data: 10001000

Error detected

Enter data to be transmitted: 101100

Enter the divisor polynomial: 1001

Data padded with  $n-1$  zeros: 101100000

CRC value is: 001

Final codeword to be sent: 101100001

Enter the received data: 101100001

No error detected

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C:\Users\Admin\Desktop\1BM21CS047\ADA\CRC16\bin\Debug\CRC16.exe

Enter the dataword

1 0 1 1 0 0 1 1 1 1 0 0 1 0 1 1 1

Enter dividend

1 0 0 0 1 0 0 0 0 0 0 1 0 0 0 1 1

Codeword: 101100111100101110000000000011011

At receiver end

Codeword: 10110011110010111000000000000000

Process returned 1 (0x1) execution time : 49.507 s

Press any key to continue.