

Cycle-2

Experiment-1

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

```
#include <stdio.h>
#include <string.h>
#define N 16 //divisor
char data[30];
char rem[30];
char divisor[10];
int length, i, j;
void xor() {
    for (j = 1; j < N; j++)
        rem[j] = ((rem[j] == divisor[j]) ? '0' : '1');
}
void crc() {
    for (i = 0; i < N; i++)
        rem[i] = data[i];
    do {
        if (rem[0] == '1') xor();
        for (j = 0; j < N-1; j++) rem[j] = rem[j+1];
        rem[j] = data[i++];
    } while (i < length + N - 1);
}
void receiver() {
    printf("Enter the data being received");
    scanf("%s", data);
    printf("Data received: %s", data);
    crc();
    for (i = 0; i < N-1; i++) if (rem[i] == '1') i++;
    if (i < N-1) printf("In error detected\n");
    else
        printf("In no error in\n");
}
```

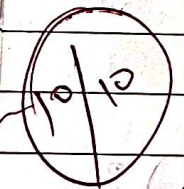


int main () {  
   printf ("Enter data to be transmitted");  
   scanf ("%s", data);  
   printf ("Enter the divisor");  
   scanf ("%s", divisor);  
   length = strlen (data);  
   for (i = length; i < length + 4; i++)  
   { data[i] = '0'; }  
   printf ("In Data provided with n-1 zeros '1's', data  
   crc ( );  
   printf ("In the remainder or CRC is '1's'", data);  
   data[i] = rem[i - length];  
   printf ("In Final data being sent '1's', data);  
   return ( );  
   return 0; }

Output:-

1) Enter data to be transmitted : 1001101  
   Enter the Divisor : 1011  
   Data padded with n-1 zeros : 10011010  
   The remainder or CRC is : 101  
   Final data being sent : 1001101101  
   Enter the data being received : 1001101101  
   Data received : 1001101101  
   No error detected in data

2) Enter data to be transmitted : 1001101  
   Enter the divisor : 1011  
   Data padded with n-1 zeros : 1001101000  
   The remainder or CRC is : 101  
   Enter the data being received : 1001100101  
   Data received : 1001100101  
   Error detected in data.



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