

```

#include <stdio.h>
#include <string.h>
#define N strlen (gen-Poly)
char data [28];
char check-value [28];
char gen-Poly [10];
int data-length i, j;
void XOR () {
    for (j=1; j<n; j++)
        check-value [j] = (check-value [j] == gen-Poly
                             ? '0' : '1');
}
void crc () {
    for (i=0; i<n; i++)
        check-value [i] = data [i];
    do {
        if (check-value [0] == '1')
            XOR();
    } while (i <= data-length + N - 1);
}

```

```

void receiver () {
    printf ("Entered the received data:");
    scanf ("%s", data);
    printf ("Data received: %s", data);
    crc ();
    for (i=0; i<n-1) if (check-value [i] != '1') i++;
    if (i < N-1)
        printf ("\n Error detected");
}

```

else

Printf ("In No errors detected");

}

int main()

{

Printf ("Enter Codeword");

scanf ("%s", data);

Printf ("Enter Generating Polynomial");

scanf ("%s", gen-Poly);

data-length = strlen (data);

for (i = data-length; i < data-length + N-1; i++)

data [i] = '0';

Printf ("In Data with zeros: %s", data);

calc();

Printf ("CRC value is: %s", check-value);

for (i = data-length; i < data-length + N-1; i++)

Printf ("Final data sent is: %s", data);

receive();

return 0;

}

out put:

Enter codeword: 1011010101

Enter Generating Polynomial: 1010

- CRC-16

Data with zeros: 10110101010000

CRC value: 000

Final data to be sent is: 10110101010000

Enter Data Received: 10110101010000

Errors detected