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

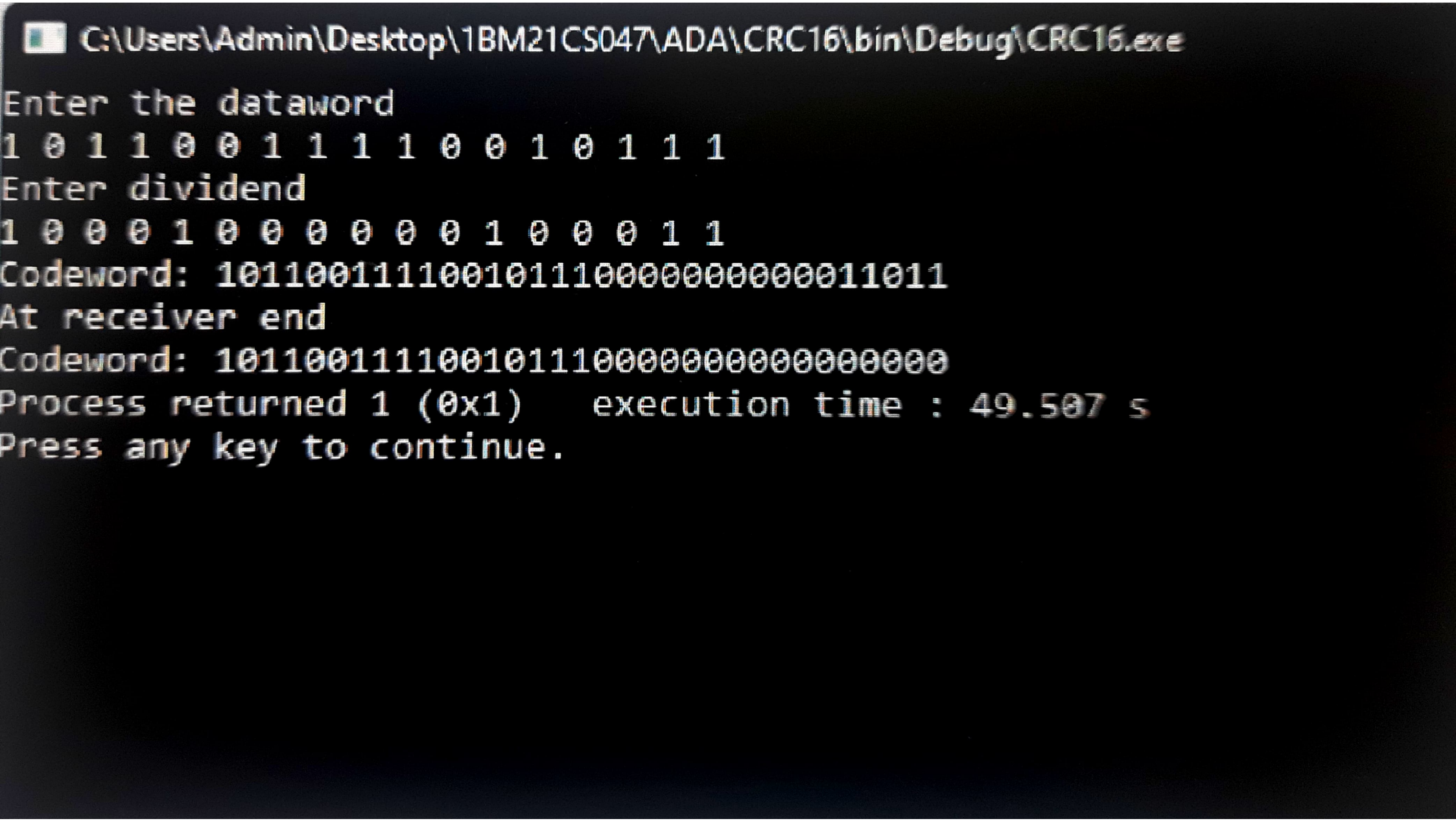
```
#include <stdio.h>
#include <string.h>
#define N strlen(gen_poly)
char data[28];
char check_value[28];
char gen_poly[10];
int data_length, i, j;
void XOR(){
for(j=1; j<N; j++)
check_value[j] = ((check_value[j]==gen_poly[j])
? '0':'1');
}
void reciever(){
 Printf("Enter the recieved data: ");
scanf("%s", data);
Printf("Data recieved: %s", data);
crc();
for(i=0; (i<N-1) && (check_value[i]!='1'); i++);
if(i<N-1)
Printf("\n Error detected\n\n");
else
Printf("\n Error not detected\n\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 \n");
scanf("%s", &data);
Printf("\n enter the divisor polynomial \n");
scanf("%s", &gen_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 zero : %s", data);
crc();
Printf("\n CRC value is : %s", check_value);
for(i=data_length; i<data_length+N-1; i++)
data[i] = check_value[i-data_length];
Printf("\n Final codeword to be sent : %s", data);
Printf("\n - - . - - - . \n");
recieverl();
return 0;
}
```

Output

Enter the dataword: 1100101011001001

Calculated CRC = 1110100101111001


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: 10110011111001011100000000000011011
At receiver end
Codeword: 10110011111001011100000000000000000
Process returned 1 (0x1)   execution time : 49.507 s
Press any key to continue.