## WEEK 13 Program 1

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

## **Observation:**

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	char poly (io):	<u>;</u>
	" " Jaho. " Jaho."	
	for (j=1; j=N; j+1)  check value j = ((check value cj ] =	sport :
	risid selection	Valid.
oaino.	sa . Al 4 Fines the Secould Olaid.	
r ,	Scanf ("18th, data):  Phintf (" Data Recioned : 1-5", data):  Occor,	N. Committee of the com
aid.	for (i=0; (i2N-1) det Check value[i]	1 = 11); i+1)3
	print (" In Error detected on	(1)
	printf (" In Error dilected of else printf (" In No who delse	tedoi);
		1
	word caco	1.5.
	for (i=0; i=N; i=1)  wheel value[i] = data[i];	
	elo{	

	if (check_nature (a) = = 11:)
	XDR CO;
	Los (isa) i N-1 (i-1-1)
1	check value (j) = check value (j+1);
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	y while ( ic dala length + No D:
	E de la companya de l
	I would have been to
	ent main()
	4 July man some
	printle in Enter data to be transmilled: ").
	prints 'n Enter doila do be drammitted: ").
	print ("In Ento, the clinics polynomial:");
	scarf (" 1.5", poly);
= : 1' 1' 1' C	data length stelen (data);
<u></u>	for (i = data length; is dailadenath + N-1:
	for (i = data length; ix data length + N-1; it)  data (i] = '0';
	printf ("In Data padded with n-1 zeroch: 184, data)
	checo:
-	De l'alle de l'a
	O data lingth, 1 data lingth, 100
	VICE LADUAN 1 Class 1. Class
	privil (10 Final datamord 1 to be sent : 7.8", data).
_	Lecines ();
-	y setura os
-	Output:
1	a the first to have an in heaver
ş	Output:
	Enter the decla to be transmetted: 101010
	Enter - The divisos polynomial
11	1011

```
Dala padded with N-1 zerols: 101010000
        value ii : 001
   CRC
           codemord to be sent:
   Jinal
        the second data: 10001000
   Enter
        delicted.
   brees
         The data to be transmitted: 10 1000
                divisos paynomial : 1001,
    Data padoled with N-1 zeroel: 1011.00000
   CRC value is: 001.
    Final
Enter the received data: 101100001.
   No viros detection
```

### **CODE:**

```
#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');
}</pre>
```

```
void receiver(){
  printf("Enter the received data: ");
  scanf("%s", data);
  printf("Data received: %s", data);
  crc();
  for(i=0;(i<N-1) && (check_value[i]!='1');i++);
     if(i \le N-1)
       printf("\nError detected\n\n");
     else
       printf("\nNo error 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);</pre>
}
int main()
  printf("\nEnter data to be transmitted: ");
  scanf("%s",data);
  printf("\n Enter the Generating polynomial: ");
  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 zeros : %s",data);
  crc();
```

```
printf("\nCRC or Check 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 data to be sent : %s",data);
receiver();
    return 0;
}</pre>
```

#### **OUTPUT:**

Enter data to be transmitted: 1000100000100001

Enter the Generating polynomial: 1011

Data padded with n-1 zeros : 10001000000100001000

CRC or Check value is : 100

Final data to be sent : 10001000000100001100

Enter the received data: 1000100000100001100

Data received: 10001000000100001100

No error detected

Enter data to be transmitted: 10001000000100001

Enter the Generating polynomial: 1011

Data padded with n-1 zeros: 10001000000100001000

CRC or Check value is: 100

Final data to be sent: 10001000000100001100

Enter the received data: 1001000000100001100

Data received: 10010000000100001100

Error detected

# Program 2

Write a program for congestion control using Leaky bucket algorithm.

### **Observation:**

	n:
	Date 18 [3] 205
	White a program for congertion control using her Bucket algorithm
	While a program for congertion
	Bucket algorithm
	The state of the s
	# include < stolio.h>
	resid maint
	d william with
	int brige, drade, in drade sembrige,
-	printly (" Enter the bucket igo: \n"):
	scarf (++d", 4 b. sige);
	Sent 6 rige = 6 rige;
_	print (" enter the outgoing data sale: (n');
	scarl (" 1.d", & Dl. sate);
_	while (1)
	paint ("Enter the size of incoming packet In").
	scanf ( tol", dind-hall)
	y (in d-sale <= 6 rigs).
	\ \frac{1}{2}
	rem b sigl - lem b sigl - in d- rate;
	sem 5 met += d late;
	print ("Data packet is accepted in"); print ("Remaining space in bucked is.
_	phintly ( Remaining stage in bushed is
	(o', sim b vie).
	2 phint ("\n");
,	i i
	else!
	print (" Data auched )
	bucket maket ing
	print ("Data packet is dropped because to bucket packet size is more than the semain bucket spain");
	print ("In").
	y pany (m):
	3 9 9
	9 9
	y

Output.

Ende the bucket sigl: 5000

Ente the outgoing dotta sale: 200.

Ente the incoming packet: 3000

Pater packet is accepted.

Remaining space in backet is 2200

Ente the sigl of incoming packet: 3000

Dotta packet is disped because the packet sigl is more alram the sumaing bucket space.

### **CODE:**

```
#include<stdio.h>
void main()
{
   int b_size,d_rate,in_d_rate,rem_b_size;
   printf("Enter the bucket size:\n");
   scanf("%d",&b_size);
   rem_b_size=b_size;
   printf("Enter the outgoing data rate:\n");
   scanf("%d",&d_rate);
   while(1)
   {
}
```

```
printf("Enter the size of incoming packet\n");
scanf("%d",&in_d_rate);
if(in_d_rate<=b_size)
{
    if(in_d_rate<=rem_b_size)
    {
        rem_b_size=rem_b_size-in_d_rate;
        rem_b_size=rem_b_size+d_rate;
        printf("Data packet is accepted\n");
        printf("Remaining space in bucket is.... %d\n",rem_b_size);
        printf("\n");
    }
    else {
        printf("Data packet is dropped because the bucket size is less than the packet size\n");
        printf("\n");
    }
}
</pre>
```

### **OUTPUT:**

```
Enter the bucket size:
5000
Enter the outgoing data rate:
200
Enter the size of incoming packet
3000
Data packet is accepted
Remaining space in bucket is.... 2200
Enter the size of incoming packet
2500
Data packet is dropped because the bucket size is less than the packet size
Enter the size of incoming packet
```