```
void shiftL()
{
int i;
for(i=1; i<=16; i++)
r[i-1]=r[i];
}
void addNums(int n)
{
int i, k=0;
for(i=n-16; i<n; i++)
m[i] = ((int)m[i]-48)*((int)r[k++]-48)+48;
m[i]='\0';
}
```

```
else
continue;
if (flag==1)
printf(" Error during transmission");
else
printf ("\n\nReceived frame is correct");
}
void crc(int n)
{
int i,j;
for(i=0;i<n;i++)
temp[i]=m[i];
for (i=0;i<16;i++)
 r[i]=m[i];
printf("\n Intermediate remainder \n");
for (i=0; i<16; i++)
{
if(r[0]=='1')
{
g[i]='1';
carom (1);
}
else
{
g[i]='0';
shiftl();
}
r[16]=m[17+i];
r[17]='\0';
printf("\n remainder %d : %s", i+1, r);
for(j=0;j<17;j++)
 temp[j]=r[j];
}
g[n-16]='\0';
}
void carom()
{
int i,j;
for(i=1;i<=16;i++)
r[i-1]=[(int)temp[i]-48)^((int)g[i]-48)+48;
```

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```
# include <stdio.h>
char m[50], g[50], r[50], q[50], temp[50];
void caltrans(int);
void crc(int);
void calram();
void shiftl();
int main()
{
int n, i=0;
char ch, flag=0;
printf("Enter the frame bits:");
while((ch=getc(stdin))!='\n')
m[i++]=ch;
n=i;
for(i=0; i<16; i++)
m[n++]='0';
printf("Message after appending 16 zeroes: %s", m);
for(i=0 ; i<=16; i++)
g[i]='0';
g[0]=g[4]=g[11]=g[16]='1'; g[17]='\0';
printf("\n generator: %s\n", g);
crc(n);
printf("\n\n quotient : %s", q);
caltrans(n);
printf("\n transmitted frame : %s", m);
printf("\n Enter transmitted frame:");
scanf("\n%s", m);
printf("CRC checking\n");
crc(n);
printf("\n\n last remainder : %s", r);
for(i=0; i<16; i++)
if(r[i]!='0')
flag=1;
```