NAME:- DUBEY KARAN SANJEEV
CLASS:- B.E - 4
ROLL NO:- 04
BATCH:- A

EXPERIMENT 11

Source Code:

Encoding:

```
#include<conio.h>
#include<stdio.h>
void main()
{       int i,j,k,l,rem,r,base,binimg[8];
        int x1=0,x2=1,y1=0,y2=2;
        int nopn=0,nopni=0;
        char ch[200];
        int bin[200][8],chnum[200];
        FILE *f1,*f2;
        clrscr();
        printf("Enter your message:");
        gets(ch);
        l=strlen(ch);
        for(i=0;i<l;i++)
        {       chnum[i]=(int)ch[i];
        }
        for(i=0;i<100;i++)
        {       for(j=0;j<8;j++)
                {       bin[i][j]=0;
                }
        }
        for(i=0;i<l;i++)
        {       r=chnum[i];
                for(j=7;j>=0;j--)
                {       rem=r%2;
                        bin[i][j]=rem;
                        r=r/2;
                }
        }
        nopn=l*4;
        nopni=nopn;
        printf("\nNumber of pixels needed for encoding:%d\n",nopn);
        f1=fopen("C:\\TC\\BIN\\Me\\IPCSS\\img.bmp","rb+");
        f2=fopen("C:\\TC\\BIN\\Me\\IPCSS\\image.bmp","wb+");
        if(f1==NULL)
        {               printf("Error in finding the image!");
        }
        else
        {       for(i=0;i<1078;i++)
                {       j=fgetc(f1);
                        fputc(j,f2);
                }
                while(nopn>0)
                {       r=fgetc(f1);
                        for(i=7;i>=0;i--)
```

```
                        {       rem=r%2;
                                binimg[i]=rem;
                                r=r/2;
                        }
                        k=6;
                        if(nopn%4==0 && nopn!=nopni)
                        {        x1=x2;
                                x2++;
                        }
                        if(y2==8)
                        {        y1=0;
                                y2=2;
                        }
                        else
                        {       if(nopn!=nopni)
                                {       y1=y2;
                                        y2=y2+2;
                                }
                        }
                        for(i=x1;i<x2;i++)
                        {
                                for(j=y1;j<y2;j++)
                                {       binimg[k]=bin[i][j];
                                        k++;
                                }
                        }
                        r=0;
                        base=1;
                        for(i=7;i>=0;i--)
                        {       r=r+binimg[i]*base;
                                base=base*2;
                        }
                        fputc(r,f2);
                        nopn--;
                }
        }
        while(!feof(f1))
        {       r=fgetc(f1);
                fputc(r,f2);
        }
        printf("Encoding Done!!");
        fclose(f1);
        fclose(f2);
        getch();
}
```

Decoding:

```
#include<conio.h>
#include<stdio.h>
void main()
{       int i,j,r,key,keyc,num,rem,x,y,base;
        int pix[200][8],mesg[200][8],chnum[200];
        char ch[200];
        FILE *f1;
        clrscr();
        printf("Enter the key:");
        scanf("%d",&key);
        keyc=key;
        f1=fopen("C:\\TC\\BIN\\Me\\IPCSS\\image.bmp","rb+");
        if(f1==NULL)
        {       printf("Picture cannot be found!!");
        }
        else
        {       for(i=0;i<1078;i++)
                {       r=fgetc(f1);
                }
                i=0;
                while(keyc>0)
                {       r=fgetc(f1);
                        num=r;
                        for(j=7;j>=0;j--)
                        {       rem=num%2;
                                pix[i][j]=rem;
                                num=num/2;
                        }
                        i++;
                        keyc--;
                }
                x=0;
                y=0;
                for(i=0;i<key;i++)
                {       if(i%4==0 && i!=0)
                        {       x++;
                        }
                        if(y==8)
                        {       y=0;
                        }
                        for(j=6;j<8;j++)
                        {         mesg[x][y]=pix[i][j];
                                  y++;
                        }
                }
                for(i=0;i<(key/4);i++)
```

```
                {           base=1;
                        chnum[i]=0;
                        for(j=7;j>=0;j--)
                        {       chnum[i]=chnum[i]+mesg[i][j]*base;
                                base=base*2;
                        }
                        ch[i]=(char)chnum[i];
                }
                printf("Message:");
                for(i=0;i<(key/4);i++)
                {       printf("%c",ch[i]);
                }
        }
        getch();
}
```

OUTPUT:

INPUT IMAGE:

OUTPUT IMAGE:

```
DOSBox 0.74, Cpu speed: max 100% cycles, Frameskip  0, Program:    TC
Enter your message:Hello World!

Number of pixels needed for encoding:48
Encoding Done!!_
```

```
DOSBox 0.74, Cpu speed: max 100% cycles, Frameskip  0, Program:    TC
Enter the key:48
Message:Hello World!_
```