PRACTICAL 8

WRITE A PROGRAM TO IMPLEMENT COHEN SUTHERLAND CLIPING.

CODE:

```
#include<stdio.h>

#include<conio.h>

#include<graphics.h>

void main()

{

int gd=DETECT, gm;

float i,xmax,ymax,xmin,ymin,x1,y1,x2,y2,m;

float start[4],end[4],code[4];

clrscr();

initgraph(&gd,&gm,"C:\\TC\\BGI");

printf("\nPlease enter the bottom left co-ordinate of view port: ");

scanf("%f %f",&xmin,&ymin);

printf("\nPlease enter the top right co-ordinate of view port: ");

scanf("%f %f",&xmax,&ymax);

printf("\nPlease enter the co-ordinates for starting point of line: ");

scanf("%f %f",&x1,&y1);

printf("\nPlease enter the co-ordinates for ending point of line: ");

scanf("%f %f",&x2,&y2);

for(i=0;i<4;i++)

{

start[i]=0;

end[i]=0;

}

m=(y2-y1)/(x2-x1);

if(x1 <xmin) start[0]=1;

if(x1 >xmax) start[1]=1;

if(y1 >ymax) start[2]=1;
```

```c
if(y1 <ymin) start[3]=1;

if(x2 <xmin) end[0]=1;

if(x2 >xmax) end[1]=1;

if(y2 >ymax) end[2]=1;

if(y2 <ymin) end[3]=1;

for(i=0;i <4;i++)

code[i]=start[i]&&end[i];

if((code[0]==0)&&(code[1]==0)&&(code[2]==0)&&(code[3]==0))

{

if((start[0]==0)&&(start[1]==0)&&(start[2]==0)&&(start[3]==0)&&(end[

0]==0)&&(end[1]==0)&&(end[2]==0)&&(end[3]==0))

{

cleardevice();

printf("\n\t\tThe line is totally visible\n\t\t and not aclipping candidate");

rectangle(xmin,ymin,xmax,ymax);

line(x1,y1,x2,y2);

getch();

}

else

{

cleardevice();

printf("\n\t\tLine is partially visible");

rectangle(xmin,ymin,xmax,ymax);

line(x1,y1,x2,y2);

getch();

}

if((start[2]==0)&&(start[3]==1))

{

x1=x1+(ymin-y1)/m;

y1=ymin;
```

```
}
if((end[2]==0)&&(end[3]==1))
{
x2=x2+(ymin-y2)/m;
y2=ymin;
}
if((start[2]==1)&&(start[3]==0))
{
x1=x1+(ymax-y1)/m;
y1=ymax;
}
if((end[2]==1)&&(end[3]==0))
{
x2=x2+(ymax-y2)/m;
y2=ymax;
}
if((start[1]==0)&&(start[0]==1))
{
y1=y1+m*(xmin-x1);
x1=xmin;
}
if((end[1]==0)&&(end[0]==1))
{
y2=y2+m*(xmin-x2);
x2=xmin;
}
if((start[1]==1)&&(start[0]==0))
{
y1=y1+m*(xmax-x1);
x1=xmax;
```

```
}

if((end[1]==1)&&(end[0]==0))

{

y2=y2+m*(xmax-x2);

x2=xmax;

}

clrscr();

cleardevice();

printf("\n\tAfter clippling:");

rectangle(xmin,ymin,xmax,ymax);

line(x1,y1,x2,y2);

getch();

}

else

{

clrscr();

cleardevice();

printf("\nLine is invisible");

rectangle(xmin,ymin,xmax,ymax);

}

getch();

closegraph();

}
```

OUTPUT

```
Please enter the bottom left co-ordinate of view port: 100 150
Please enter the top right co-ordinate of view port: 250 300
Please enter the co-ordinates for starting point of line:130 125
Please enter the co-ordinates for ending point of line: 230 195
```

Line is partially visible

After clippling: