**/\* Program No. :**

**Aim : WAP for line clipping.**

**\*/**

#include<stdio.h>

#include<stdlib.h>

#include<graphics.h>

#include<conio.h>

void main()

{

int xmax,ymax,xmin,ymin,lx1,ly1,lx2,ly2,a[4],b[4],c[4],x1,y1,i;

float m;

int gdriver = DETECT, gmode, errorcode;

initgraph(&gdriver, &gmode, "C:\\TC3.0\\BGI");

errorcode = graphresult();

clrscr();

if (errorcode != grOk)

{

printf("Graphics error: %s\n", grapherrormsg(errorcode));

printf("Press any key to exit.");

getch();

exit(1);

}

printf("\nEnter the starting point of Viewport, x : ");

scanf("%d",&xmin);

printf("\nEnter the starting point of Viewport, y : ");

scanf("%d",&ymin);

printf("\nEnter the ending point of Viewport, x : ");

scanf("%d",&xmax);

printf("\nEnter the ending point of Viewport, y : ");

scanf("%d",&ymax);

printf("\nEnter the starting point of line, x :");

scanf("%d",&lx1);

printf("\nEnter the starting point of line, y :");

scanf("%d",&ly1);

printf("\nEnter the ending point of line, x :");

scanf("%d",&lx2);

printf("\nEnter the ending point of line, y :");

scanf("%d",&ly2);

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

{

a[i]=0;

b[i]=0;

}

clrscr();

rectangle(xmin,ymin,xmax,ymax);

line(lx1,ly1,lx2,ly2);

getch();

clrscr();

m=(ly2-ly1)/(lx2-lx1);

if(lx1<xmin)

a[3]=1;

if(lx1>xmax)

a[2]=1;

if(ly1<ymin)

a[1]=1;

if(ly1>ymax)

a[0]=1;

if(lx2<xmin)

b[3]=1;

if(lx2>xmax)

b[2]=1;

if(ly2<ymin)

b[1]=1;

if(ly2>ymax)

b[0]=1;

printf("\n\tRegion Code of 1st point :\n");

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

printf("\t%d",a[i]);

printf("\n\n\tRegion Code of 2nd point :\n");

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

printf("\t%d",b[i]);

printf("\n\n\tAnding of the two region points :\n");

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

{

c[i]=a[i]&&b[i];

printf("\t%d",c[i]);

}

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

{

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

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

{

printf("\n\n\n\t\tThe Line is Completely Visible.");

printf("\n\t\tIt has no need to be Clipped.");

getch();

clrscr();

rectangle(xmin,ymin,xmax,ymax);

line(lx1,ly1,lx2,ly2);

getch();

}

else

{

printf("\n\n\n\t\tThe Line is Partially Visible.");

printf("\n\t\tIt needs to be Clipped.");

getch();

clrscr();

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

{

x1=lx1+(ymin-ly1)/m;

lx1=x1;

ly1=ymin;

}

else if((b[0]==0)&&(b[1]==1))

{

x1=lx2+(ymin-ly2)/m;

lx2=x1;

ly2=ymin;

}

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

{

x1=lx1+(ymax-ly1)/m;

lx1=x1;

ly1=ymax;

}

else if((b[0]==1)&&(b[1]==0))

{

x1=lx2+(ymax-ly2)/m;

lx2=x1;

ly2=ymax;

}

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

{

y1=ly1+m\*(xmin-lx1);

ly1=y1;

lx1=xmin;

}

else if((b[2]==0)&&(b[3]==1))

{

y1=ly2+m\*(xmin-lx2);

ly2=y1;

lx2=xmin;

}

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

{

y1=ly1+m\*(xmax-lx1);

ly1=y1;

lx1=xmax;

}

else if((b[2]==1)&&(b[3]==0))

{

y1=ly2+m\*(xmax-lx2);

ly2=y1;

lx2=xmax;

}

rectangle(xmin,ymin,xmax,ymax);

line(lx1,ly1,lx2,ly2);

getch();

}

}

else

{

printf("\n\n\n\t\tThe Line is Completely Invisible.");

getch();

clrscr();

rectangle(xmin,ymin,xmax,ymax);

getch();

}

closegraph();

}

**/\***

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