LAB 5 CGM

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CSE-C

OBJECTIVE: Clip a line using liang Barsky line clipping algorithm.

Source Code:

```
#include<iostream.h>
#include<graphics.h>
#include<math.h>
#include<dos.h>
void main()
{
int i, gd=DETECT, gm;
int x1, y1, x2, y2, xmin, xmax, ymin, ymax, xx1, xx2, yy1, yy2, dx, dy;
float t1, t2, p[4], q[4], temp;
x1=120;
y1=120;
```

```
x2=300;
y2=300;
xmin=100;
ymin=100;
xmax=250;
ymax=250;
initgraph(&gd, &gm,"c:\\turboc3\\bgi");
rectangle(xmin, ymin, xmax, ymax);
dx=x2-x1;
dy=y2-y1;
p[0]=-dx;
p[1]=dx;
p[2]=-dy;
p[3]=dy;
q[0]=x1-xmin;
q[1]=xmax-x1;
q[2]=y1-ymin;
q[3]=ymax-y1;
for(i=0;i<4;i++)
{
if(p[i]==0)
```

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```
{
cout<<"line is parallel to one of the clipping boundary";
if(q[i]>=0)
{
if(i<2)
{
if(y1<ymin)
{
y1=ymin;
}
if(y2>ymax)
{
y2=ymax;
}
line(x1, y1, x2, y2);
}
if(i>1)
{
if(x1<xmin)
```

```
{
x1=xmin;
}
if(x2>xmax)
{
x2=xmax;
}
line(x1,y1,x2,y2);
}
}
}
}
t1=0;
t2=1;
for(i=0;  i<4;  i++)
{
temp=q[i]/p[i];
if(p[i]<0)
{
if(t1<=temp)
t1=temp;
```

```
}
else
{
if(t2>temp)
t2=temp;
}
}
if(t1<t2)
{
xx1 = x1 + t1 * p[1];
xx2 = x1 + t2 * p[1];
yy1 = y1 + t1 * p[3];
yy2 = y1 + t2 * p[3];
line(xx1,yy1,xx2,yy2);
}
delay(5000);
closegraph();
}
```

Output: