Department of Computer Science &Engineering(CSE)

LAB – 10

Name   :   Shah Ibne Fahad

Student ID   :   C193048

Semester   :   7th

Section   :   7BM

Email   :   c193048@ugrad.iiuc.ac.bd

Contact   :   01860793742

Course Code :   CSE-4742

Course Title :   Computer Graphics Lab

Name of the course Teacher :

Mahadi Hassan

Associate Professor

Dept of Computer Science and Engineering,IIUC

Liang-Barskey algorithm :

```cpp
#include <bits/stdc++.h>

#include<graphics.h>

#include<math.h>

#include<dos.h>

using namespace std;

int 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=150;

    y1=50;

    x2=120;

    y2=300;

    xmin=100;

    ymin=100;

    xmax=250;

    ymax=250;

    initgraph(&gd,&gm,"c:\\turboc3\\bgi");

    rectangle(xmin,ymin,xmax,ymax);

    dx=x2-x1;
```

```cpp
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)
   {
      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();
}
```