আন্তর্জাতিক ইসলামী বিশ্ববিদ্যালয় চট্টগ্রাম

الجامعة الإسلامية العالمية شيتاغونغ

International Islamic University Chittagong

Department of Computer Science & Engineering(CSE)

Lab -09

Name : Jabed Iqbal Joy

Student ID : C193049

Semester : 7th

Section : 7BM

Email : c193049@ugrad.iiuc.ac.bd

Contact : 01837844828

Course Code : CSE-4742

Course Title : Computer Graphics Lab

Name of the course Teacher :

Mahadi Hassan

Assistant Professor

Department of CSE, IIUC

Date of Submission : 15/05/23

1.- Cohen-Sutherland algorithm for line clipping.

Code:

```
#include <bits/stdc++.h>
#include <conio.h>
#include <graphics.h>
using namespace std;
int xmin, ymin, xmax, ymax;
int Visible_or_not(int x, int y)
{
   int code = 0;
   if (x < xmin)   code |= 1;
   else if (x > xmax)   code |= 2;
   if (y < ymin)       code |= 4;
   else if (y > ymax)       code |= 8;
   return code;
}
int main()
{
   int gd = DETECT, gm;
   initgraph(&gd, &gm, "");
   xmin = 100;
   ymin = 100;
   xmax = 300;
   ymax = 300;
   rectangle(xmin, ymin, xmax, ymax);
   int x0 = 20;
   int y0 = 200;
   int x1 = 400;
```

```
int y1 = 200;
line(x0, y0, x1, y1);
delay(1000);
int p1 = Visible_or_not(x0, y0);
int p2 = Visible_or_not(x1, y1);
if(p1!=0)
{
   int codeOut=p1;
   int x, y;
   if (codeOut & 8){
      x = x0 + (x1 - x0) * (ymax - y0) / (y1 - y0);
      y = ymax;
   }
   else if (codeOut & 4){
      x = x0 + (x1 - x0) * (ymin - y0) / (y1 - y0);
      y = ymin;
   }
   else if (codeOut & 2) {
      y = y0 + (y1 - y0) * (xmax - x0) / (x1 - x0);
      x = xmax;
   }
   else{
      y = y0 + (y1 - y0) * (xmin - x0) / (x1 - x0);
      x = xmin;
   }
   setcolor(BLACK);
   line(x0, y0, x, y);
   putpixel(x,y,WHITE);
```

```
}
delay(1000);
if(p2!=0)
{
   int codeOut=p2,x,y;
   if (codeOut & 8)
   {
      x = x0 + (x1 - x0) * (ymax - y0) / (y1 - y0);
      y = ymax;
   }
   else if (codeOut &4 )
   {
      x = x0 + (x1 - x0) * (ymin - y0) / (y1 - y0);
      y = ymin;
   }
   else if (codeOut & 2)
   {
      y = y0 + (y1 - y0) * (xmax - x0) / (x1 - x0);
      x = xmax;
   }
   else
   {
      y = y0 + (y1 - y0) * (xmin - x0) / (x1 - x0);
      x = xmin; }
   setcolor(BLACK);
   line(x1, y1, x, y);
   putpixel(x,y,WHITE);
}
```

```
    getch();
    closegraph();
    return 0;
}
```