CPE 361 Computer Graphics
Laboratory Exercise 2

Objective

This lab gives you practice line clipping

Instructions

Create a program for clipping a given line. This program will set the specific window and receive two points which are both endpoints of the line segment. The program generates the **four-bit code** for each point. Then it classifies clipping categories: **visible**, **invisible**, and **clipping candidate**. After that, the program will calculate the visible points and show the result.

1. Given the window coordinates be (10, 10) and (260, 160) for the lower-left and upper-right corners, respectively.
2. Receive two endpoints of the line segment as inputs. These two points will enter by the value of x and y in the same line. For example,

   50 50 150 150 // input x1 y1 x2 y2 for point 1 (x1, y1) and point 2 (x2, y2)

3. Generate the four-bit code for point 1 and point 2.
4. Classify the clipping categories: **visible**, **invisible**, and **clipping candidate**.
5. If the clipping category is **visible** or **clipping candidate**, visible points must be determined. If the clipping category is clipping candidate and the line segment cannot be shown in the window, the clipping category will be **invisible**.
6. Show the result for line clipping. For example,

   0 0 0 0 //Four-bit code for point 1
   0 0 0 0 //Four-bit code for point 2
   Visible //Clipping category
   (50.000, 50.000) //Visible point 1 if line segment can be shown in the window
   (150.000, 150.000)//Visible point 2 if line segment can be shown in the window

Example

Input	Output
50 50 150 150	0 0 0 0 0 0 0 0 Visible (50.000, 50.000) (150.000, 150.000)
50 50 300 150	0 0 0 0 0 0 1 0 Clipping Candidate (50.000, 50.000) (260.000, 134.000)
5 5 0 100	0 1 0 1 0 0 0 1 Invisible