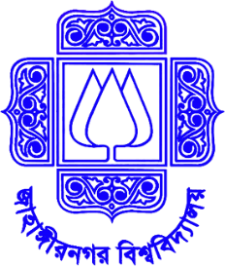
**Lab Report. 06**

*Course title: Computer Graphics Lab*

*Course code: CSE-304*

*3rd Year 1st Semester 2022*

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###### **Submitted to-**

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View-port clipping using Liang-Barsky algorithm

Code:

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| --- | --- |
| #include <iostream>  #include <graphics.h>  using namespace std;  void drawColoredLine(int x1, int y1, int x2, int y2, int color) {  setcolor(color);  line(x1, y1, x2, y2);  setcolor(WHITE);  }  void liangBarsky(int x1, int y1, int x2, int y2, int xmin, int ymin, int xmax, int ymax) {  int p[4], q[4];  int dx = x2 - x1, dy = y2 - y1;  p[0] = -dx; q[0] = x1 - xmin;  p[1] = dx; q[1] = xmax - x1;  p[2] = -dy; q[2] = y1 - ymin;  p[3] = dy; q[3] = ymax - y1;  float u1 = 0, u2 = 1;  for (int i = 0; i < 4; i++) {  if (p[i] == 0) {  if (q[i] < 0) {  return;  }  } else {  float t = (float)q[i] / p[i];  if (p[i] < 0) {  u1 = max(u1, t);  } else {  u2 = min(u2, t);  }  }  } | if (u1 > u2) {  return;  }  int clippedX1 = x1 + u1 \* dx;  int clippedY1 = y1 + u1 \* dy;  int clippedX2 = x1 + u2 \* dx;  int clippedY2 = y1 + u2 \* dy;  drawColoredLine(x1, y1, clippedX1, clippedY1, BLUE);  drawColoredLine(clippedX1, clippedY1, clippedX2, clippedY2, WHITE);  drawColoredLine(clippedX2, clippedY2, x2, y2, BLUE);  }  int main() {  int gd = DETECT, gm;  initgraph(&gd, &gm, "");  int xmin = 100, ymin = 100, xmax = 400, ymax = 300;  rectangle(xmin, ymin, xmax, ymax);  liangBarsky(50, 50, 300, 250, xmin, ymin, xmax, ymax);  liangBarsky(150,150,175,50,xmin,ymin,xmax,ymax);  liangBarsky(200,350,100,80,xmin,ymin,xmax,ymax);  liangBarsky(500,450,75,90,xmin,ymin,xmax,ymax);  getch();  delay(50000);  closegraph();  return 0;  } |

Output:

