



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

SCHOOL OF COMPUTING
SESSION 2020/2021 SEMESTER 2
SECV2213 - FUNDAMENTAL OF COMPUTER GRAPHICS
LAB 2 – CODE & REFLECTION

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Reflection

My reflection for this topic is first I understand for DDA calculation because it calculates one by one and I see the step differently with Bresenhem calculation, it simple but a little bit confusing but I more understand after I do a change in this coding in lineBresenhem.

```
#include<stdlib.h>
#include<GL/glut.h>
#include<math.h>
inline GLint round(const GLfloat a) { return GLint(a + 0.5); }
void init(void)
{
    glClearColor(1.0, 1.0, 2.0, 2.0);

    glMatrixMode(GL_PROJECTION);
    gluOrtho2D(0.0, 300.0, 0.0, 300.0);
}
void setPixel(GLint xCoordinate, GLint yCoordinate)
{
    glBegin(GL_POINTS);
    glVertex2i(xCoordinate, yCoordinate);
    glEnd();
    glFlush();
}
void lineBresenhem(GLint x1, GLint y1, GLint x2, GLint y2)
{
    //find dx, dy
    GLint dx = x2 - x1;
    GLint dy = y2 - y1;
    GLint p, x, y;

    p = 2 * dy - dx; //to find p0

    x = x1;
    y = y1;

    while (x <= x2)
    {
        glVertex2i(x, y);
        x = x + 1; //value x increase incremently

        if (p >= 1)
        {
            setPixel(x, y);
            y = y + 1; //if y is positive, +1
            p = p + 2 * dy - 2 * dx;
        }
        else
        {
            setPixel(x, y);
            y = y; //if y negative, stay
            p = p + 2 * dy;
        }
    }
}
void drawMyLine(void)
{
    glClear(GL_COLOR_BUFFER_BIT);
    glColor3f(0.0, 1.0, 0.0); //change color green
    glPointSize(4.0);
    GLint x0 = 100;
    GLint y0 = 100;
```

```
GLint xEnd = 200;
GLint yEnd = 200;
lineBresenhem(x0, y0, xEnd, yEnd);
}
void main(int argc, char** argv)
{
    glutInit(&argc, argv);
    glutInitDisplayMode(GLUT_SINGLE | GLUT_RGB);
    glutInitWindowSize(600, 600);
    glutInitWindowPosition(0, 0);
    glutCreateWindow("Digital Differential Analyzer Algorithm - Lab2");
    init();
    glutDisplayFunc(drawMyLine);
    glutMainLoop();
}
```

OUTPUT:

