Practical-8

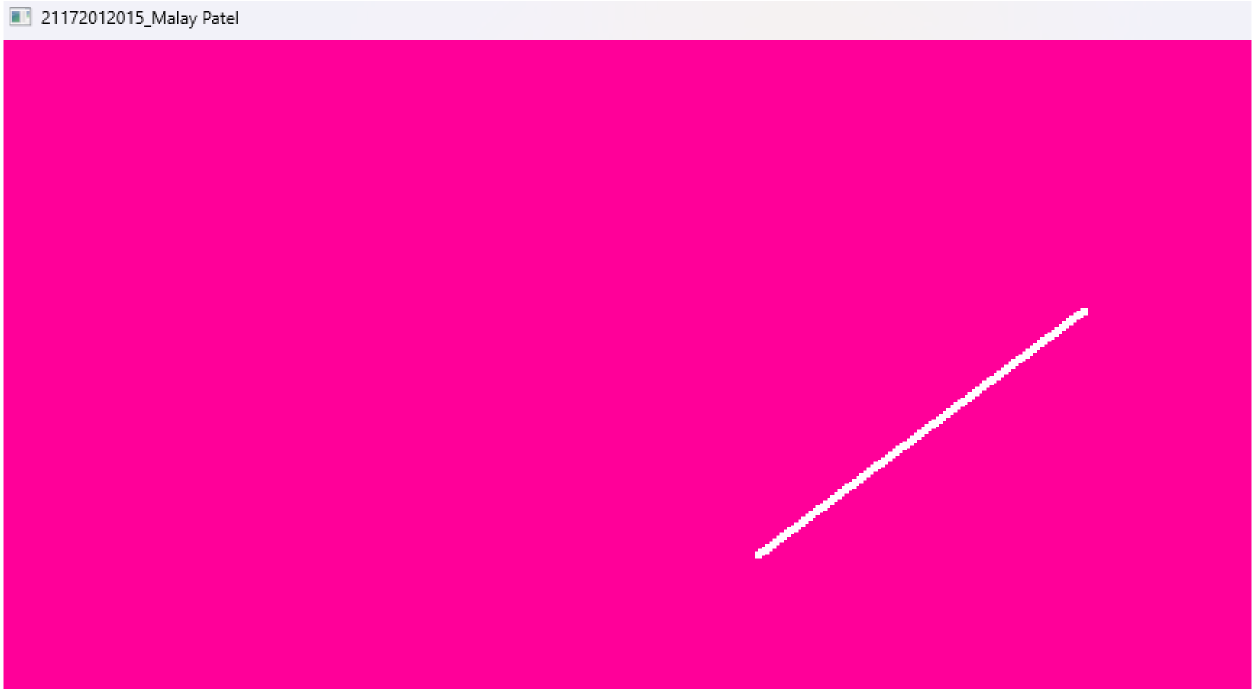
AIM: Study to Bresenham's Line Algorithm

Code:

```
namespace gp8_1
{
    void setPixel(double x, double y)
    {
        glBegin(GL_POINTS);
        glVertex2d(x, y);
        glEnd();
    }
    void lineBresenham(int x0, int y0, int xEnd, int yEnd)
    {
        float xIncreament, yIncreament;
        int steps, x, y;
        int dx = fabs(xEnd - x0);
        int dy = fabs(yEnd - y0);
        int twoDy = dy * 2;
        int twoDyMinusDx = 2 * (dy - dx);
        int p = 2 * dy - dx;
        if (x0 > xEnd)
            x = xEnd, y = yEnd, xEnd = x0;
        else
            x = x0, y = y0;
        setPixel(x, y);
        while (x < xEnd)
        {
            x++;
            if (p < 0)
                p += twoDy;
            else
            {
                p += twoDyMinusDx;
                y++;
            }
            setPixel(x, y);
        }
    }
    void display()
    {
        glClear(GL_COLOR_BUFFER_BIT);
        glPointSize(5.0);
        lineBresenham(10, 10, 100, 100);
        glFlush();
    }
    void reshape(int, int);
    void init() // for clear color
```

```
        {
                glClearColor(1.0, 0.0, 0.6, 1.0); //lies between 0-1 for color
intensity
        }
        void main(int argc, char** argv) // command line arguments
        {
                glutInit(&argc, argv); // initialized glut library
                glutInitDisplayMode(GLUT_RGB); // Display mode that glut will use
                glutInitWindowPosition(100, 100); // create window with windows.
                glutInitWindowSize(1000, 1000); //width & height of window or size of
window
                        glutCreateWindow("21172012015_Malay Patel");//with title of
window..1 order
                        glutDisplayFunc(display); //2 order
                glutReshapeFunc(reshape);
                init();
                glutMainLoop(); // loop run continues to display windows
        }
        void reshape(int w, int h)//resize clipping area
        {
                glViewport(0, 0, (GLsizei)w, (GLsizei)h); //everything's draw inside it
                        glMatrixMode(GL_PROJECTION);//change mode or rotation or scaling
                glLoadIdentity();//reset all parameters
                gluOrtho2D(-200, 200, -200, 200);
                glMatrixMode(GL_MODELVIEW);//change mode
        }
}
```

OUTPUT:


21172012015_Malay Patel