Name :- Nitish Anil Jha
Roll No :- 18
Division :- S
AI-DS

Computer graphics

The Bresenham Line Algorithm is a fundamental computer graphics algorithm used for drawing lines on a pixel grid. Developed by Jack E. Bresenham in 1962, it efficiently determines which pixels to illuminate in order to approximate a straight line between two given points.

Key features of the Bresenham Line Algorithm include:

1. Efficiency: It uses integer arithmetic and avoids costly floating-point calculations, making it computationally efficient for line drawing.

2. Symmetry: The algorithm takes advantage of the symmetry of lines to minimize computational effort. It incrementally chooses the next pixel in a way that is either horizontal or vertical, reducing the need for complex operations.

3. Accuracy: Bresenham's algorithm ensures that the line closely approximates the ideal mathematical line. Errors in pixel placement are minimized.

4. Versatility: While originally designed for drawing lines, the algorithm's principles can be extended to draw other shapes like circles and ellipses efficiently.

Overall, the Bresenham Line Algorithm remains a widely used and important tool in computer graphics and remains relevant in various applications, including computer-aided design, video game development, and computer graphics rendering.