Algorithm Overview (Bresenham's Line Drawing Algorithm)

1. Compute the absolute differences between the endpoints:
    - dx=|x2−x1|dx = |x_2 - x_1|dx=|x2−x1|
    - dy=|y2−y1|dy = |y_2 - y_1|dy=|y2−y1|
2. Decide the direction of movement along each axis:
    - sx=+1s_x = +1sx=+1 or −1-1−1 depending on whether the line moves right or left.
    - sy=+1s_y = +1sy=+1 or −1-1−1 depending on whether the line moves upward or downward.
3. Compare the values of dxdxdx and dydydy to determine the dominant direction of the line.
4. If dx≥dydx \ge dydx≥dy, the line is considered **more horizontal**, and the x-coordinate is incremented step by step.
5. If dx<dydx < dydx<dy, the line is **more vertical**, and the y-coordinate is incremented step by step.
6. At each step, a decision parameter is updated using integer arithmetic to select the next pixel position.
7. The process continues until the ending point is reached.