

## **Algorithm: DDA Line Drawing**

Step 1: Start and take the input points  $((x_1, y_1))$  and  $((x_2, y_2))$ .

Step 2: Calculate the differences in x and y coordinates:

$$(dx = x_2 - x_1) \text{ and } (dy = y_2 - y_1).$$

Step 3: Determine the number of steps required to draw the line:

$$\text{steps} = \text{int}(\max(|dx|, |dy|)).$$

Step 4: Calculate the increments for each step:

$$x_{\text{inc}} = dx / \text{steps} \text{ and } y_{\text{inc}} = dy / \text{steps}$$

Step 5: Initialize starting coordinates:

$$(x = x_1) \text{ and } (y = y_1).$$

Step 6: Loop through each step from 0 to steps:

Add the current  $((x, y))$  coordinate (rounded to the nearest integer) to the list of points.

Increment  $(x)$  and  $(y)$  by  $(x_{\text{inc}})$  and  $(y_{\text{inc}})$ .

Step 7: Plot the line using all calculated points. Use a plotting library (like Matplotlib) to draw the points and connect them. Add title, axis labels, and grid for clarity.

Step 8: End.