**Bresenham’s Line Algorithm For All Cases:**

Input

* Start point (x0,y0) and end point (x1, y1)

Steps

1. Calculate Differences:

* Δx = ⎪x1 – x0⎪
* Δy = ⎪y1 – y0⎪

1. Determine the Dominant Axis:

* If Δx >= Δy, the line has a shallow slope (⎪m⎪<=1).
* If Δx < Δy, the line has a sleep slope (⎪m⎪>1).

1. Set step Directions:

* Sx = 1 if x1 > x0 , otherwise Sx = -1
* Sy = 1 if y1 > y0 , otherwise Sy= -1

1. Intialize Decision parameter:

* For shallow slopes (⎪m⎪<=1): P0 = 2Δy - Δx
* For steep slopes (⎪m⎪>1): Swap role of x and y ,and set:

P0 = 2Δx - Δy

1. Plot the Initial point:

* Plot (x0 , y0 )

1. Separate until the end point is Reached:

* For k=0 to the dominant axis length (Δx or Δy):
* For shallow slopes (⎪m⎪<=1):
* Increment x0 by Sx
* If Pk >= 0:
* Increment y0 by Sy
* Update : Pk + 1 = Pk + 2Δy -2Δx
* Else:
* Update : Pk + 1 = Pk + 2Δy
* For steep slopes (⎪m⎪>1):
* Increment y0 by Sy
* If Pk >= 0:
* Increment x0 by Sx
* Update : Pk + 1 = Pk + 2Δx -2Δy
* Else:
* Update : Pk + 1 = Pk + 2Δx
* Plot the new point (x0 , y0).

1. Terminate:

* Stop when the end-point (x1 , y1 ) is plotted.