## LAB1: Digital Differential Analyzer (DDA) English to the feel physics of white of place

> To understand about DDA line algorithm

> To generate line in console using DDA.

## Theory:

thouse at the see shopping Digital differential amplifier CDDA) algorithm is a scan conversion line algorithm based on calculating either Dx or Dy using the relation, Dy = m Dx (woods ly prime later and woods . 81 eps 2)

## [DDA Algorithm]

Step 1 : Start

Step 2: Declare x1, y1, x2, y2, dx, step as integer vario and a, y, rinc , yinc as floating point.

Step 3: Enter variable values of x,, y,, 72, 42

Step 4: Calculate da = 2-21

Calculate dy=42-41 Step 5:

step 6: Ialculate steps = max (abs(dx), abs(dy))

step 7: Calculate a increment = da/steps

Calculate yincrement = dy/steps Step 8:

Step 9 : Set (x,y) = (x1,y1) Step 10: Initialize empty lists: nes=[], yes=[] step 11: For each step from 0 to steps-11: a Round a to the nearest integer and append it to zes. b. Round y to the nearest integer and append it to yes. c. Update y = y + y increment

d. Update y = y + y increment

Step 12: Plot the points (xes, yes) using ph. plot(). Step 13: Show the plot using plt. show(). Lindbiogia A fiota: T end a. A. Kine And as Alouting point. loted ranget = 1/ch. R. R. 10 santon application istary rakulate da = as = a1 12-st-th Holumb Robotologic shops = man (abolida), abordan) manapair pholiphri

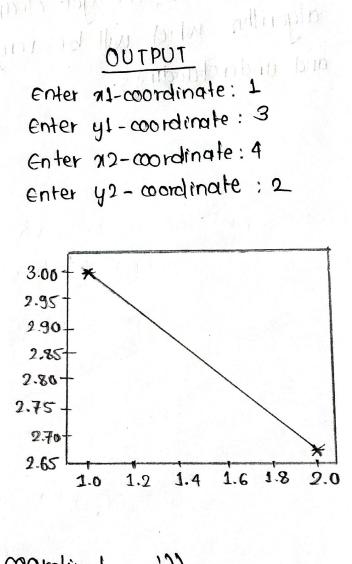
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Code:
   #dda algorithm implementation
   import matplotlib. pyplot as plt
   def dda_algorithm (21, y1, 22, y2);
    dx = x2-x1
    dy = 42 - 41
    steps = max (abs(dx), abs (dy))
    xes = []
                         the real motor tope one in not not and
    yes = [ ]
   nincrement = da/stups
   y increment = dy/steps
   x,y=x1,41
   for i in range (steps):
   nes.append(7)
   yes. append (y)
   x = x + x increment
   y = y1 + yincrement
  plt.plot (xes, yes, marker = '* ')
  plt.show()
1 = int (input ('Enter number 21-coordinate: '))
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qui=int (input ('Enter y1-coordinate: '))

42 = int (input ('Enter 42-coordinate: 1))

x2 = int (input ('Enter x2-coordinate:

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Discussion and Conclusion:

In this lab, we learned about DDA line algorithm. The DDA algorithm is a technique used to draw lines on discrete coordinate system such as computer screens

In this lab, we imported a python library called matplotlib . For this we used command 'pip install matplotlib'. The code didn't executed until and unless library was imported correctly.

From this lab, we got clear concept about DDA line algorithm which will be very helpful in future projects and understandings. Th .. Tx - A. x

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