COMPUTER GRAPHICS

(E2UC402B)

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Numerical

on

DDA

(Digital Differential Analyzer)

(m < 1)

(Digital Differential Analyzer)

Suppose starting coordinates (0,0) and ending coordinates are (8,4)

Step 1: Enter the value of starting point (X1,Y1) and end point (X2,Y2)

Step 2: Xk=X1 and Yk=Y1

Step 3: Calculate the slope of line i.e. m

m = (Y2-Y1) / (X2-X1) = 0.5

Step 4: Check value of m

(Digital Differential Analyzer)

Step 5: Is m == 1 X (NO)

LEAVE STEP 6

(Digital Differential Analyzer)

Step 7: Is m < 1 (YES)

Step 8: for (Xk=X1; Xk<=X2; Xk++)

Plot the point Xk and (Round)Yk

Yk= Yk+m

Loop until TRUE

(Digital Differential Analyzer)

Step 9: Is m > 1 X (NO)

LEAVE STEP 10

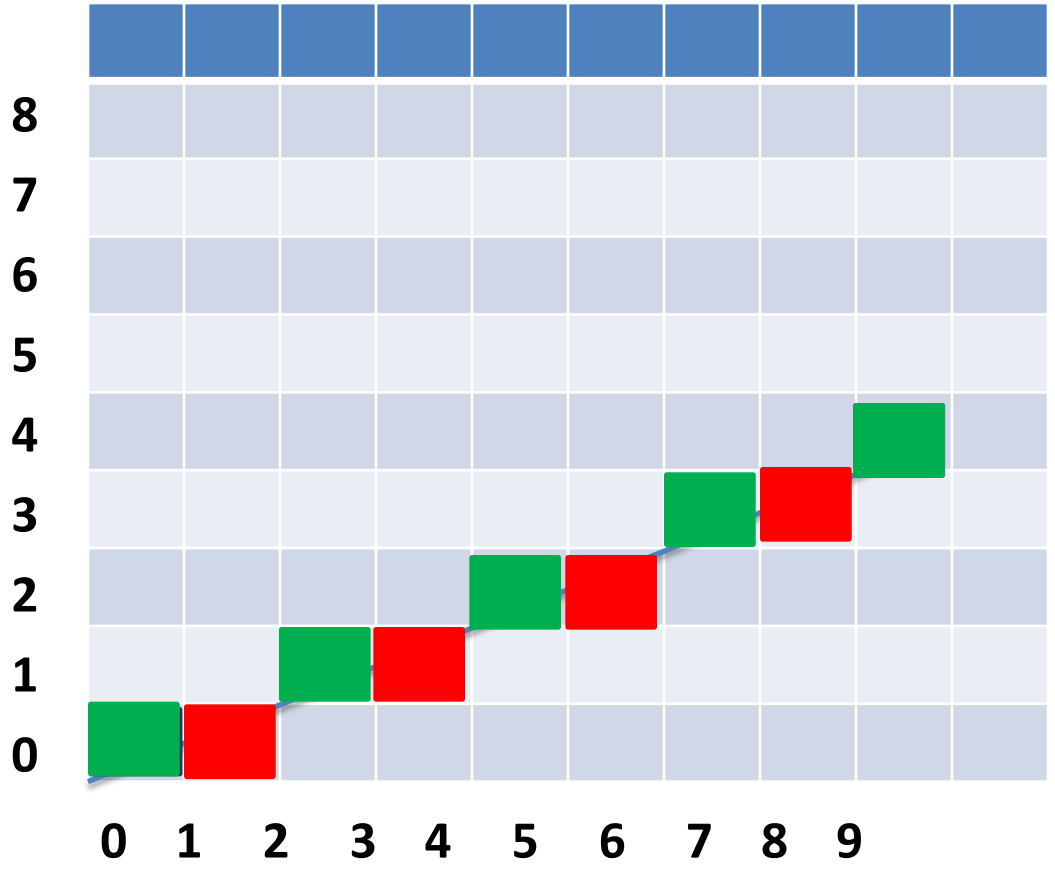
Step 11: Exit

Table for Intermediates coordinate points

X	Y	(X,Y)
0	0	(0,0)
1	0+0.5 = 0.5	(1,0)
2	0.5 +0.5 = 1.0	(2,1)
3	1.0 +0.5 = 1.5	(3,1)
4	1.5 +0.5 = 2.0	(4,2)
5	2.0 +0.5 = 2.5	(5,2)
6	2.0 +0.5 = 3.0	(6,3)
7	3.0 +0.5 =3.5	(7,3)
8	3.5 +0.5 = 4.0	(8,4)

Pixel Positions

Line: (0,0) to (8,4)



Numerical

on

DDA

(Digital Differential Analyzer)

(m>1)

(Digital Differential Analyzer)

Suppose starting coordinates (0,0) and ending coordinates are (4,6)

Step 1: Enter the value of starting point (X1,Y1) and end point (X2,Y2)

Step 2: Xk=X1 and Yk=Y1

Step 3: Calculate the slope of line i.e. m

m = (Y2-Y1) / (X2-X1)=1.5

Step 4: Check value of m

(Digital Differential Analyzer)

Step 5: Is m == 1 X (NO)

LEAVE STEP 6

(Digital Differential Analyzer)

Step 7: Is m < 1 X (NO)

LEAVE STEP 8

(Digital Differential Analyzer)

Step 9: Is m > 1 (YES)

Step 10: for (Yk=Y1; Yk<=Y2; Yk++)

Plot the point (Xobs, Yk)

Xk= Xk+1/m

Loop until TRUE

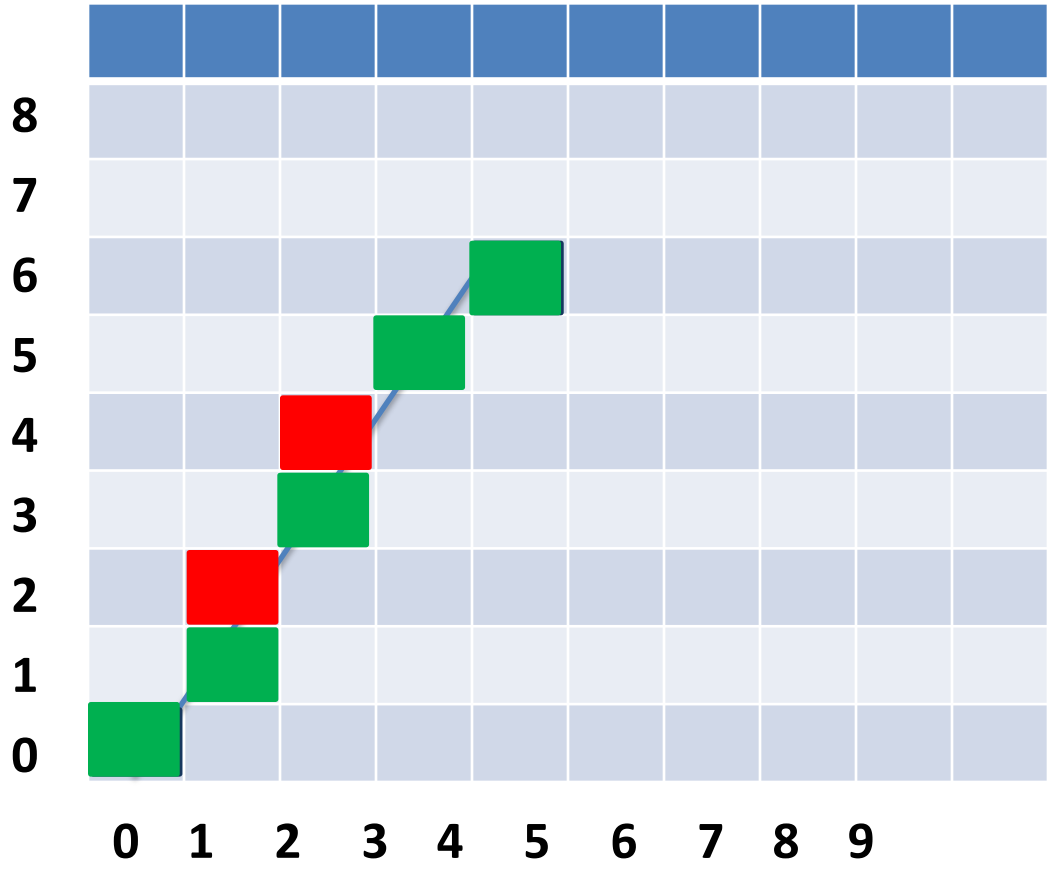
Step 11: Exit

Table for Intermediates coordinate points

X	Y	(X,Y)
0	0	(0,0)
0+0.6 = 0.6	1	(1,1)
0.6 +0.6 = 1.2	2	(1,2)
1.2 +0.6 = 1.8	3	(2,3)
1.8 +0.6 = 2.4	4	(2,4)
2.4 +0.6 = 3.0	5	(3,5)
3.0 +0.6 = 3.6	6	(4,6)

Pixel Positions

Line: (0,0) to (4,6)



Numerical

on

DDA

(Digital Differential Analyzer)

(m=1)

(Digital Differential Analyzer)

Suppose starting coordinates (0,0) and ending coordinates are (4,4)

Step 1: Enter the value of starting point (X1,Y1) and end point (X2,Y2)

Step 2: Xk=X1 and Yk=Y1

Step 3: Calculate the slope of line i.e. m

m = (Y2-Y1) / (X2-X1) = 1

Step 4: Check value of m

(Digital Differential Analyzer)

Step 5: Is m = 1 (YES)

Step 6: for (Xk=X1; Xk<=X2; Xk++)

Plot the point Xk and Yk

Yk= Yk++m

Loop until TRUE

(Digital Differential Analyzer)

Step 7: Is m < 1 X (NO)

LEAVE STEP 8

Step 9: Is m > 1 X (NO)

LEAVE STEP 10

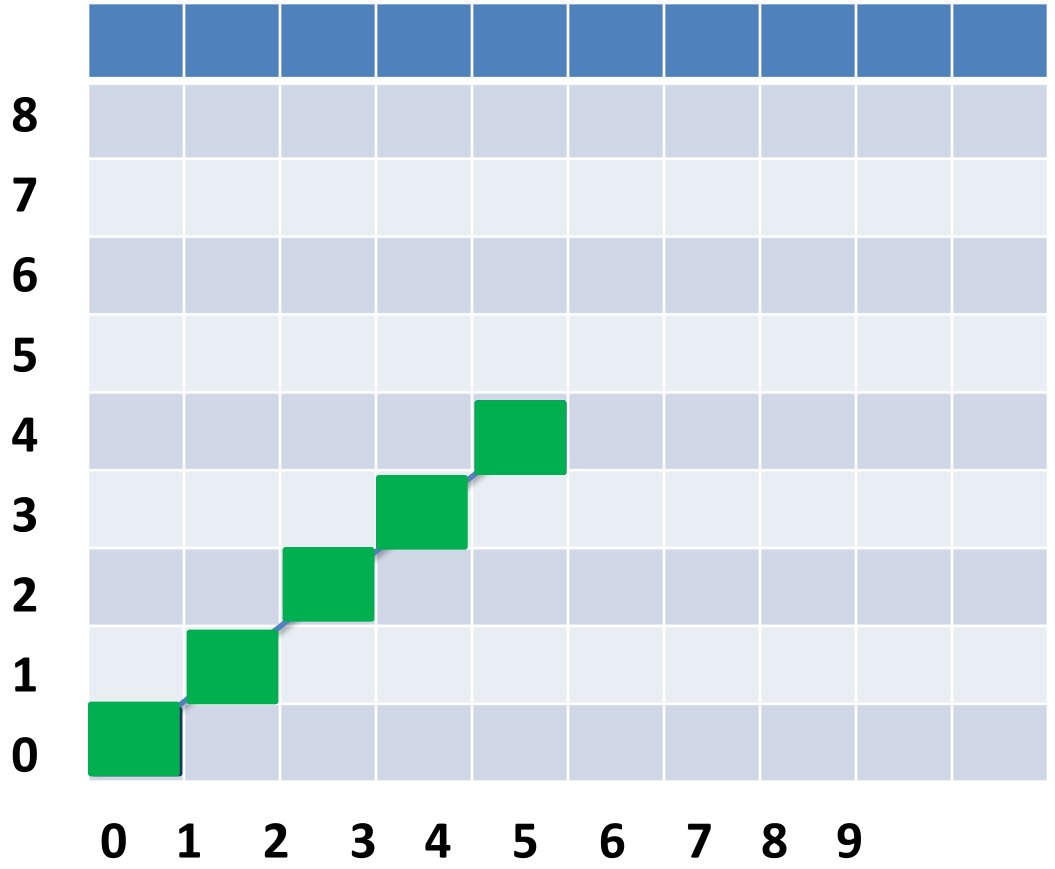
Step 11: Exit

Table for Intermediates coordinate points

X	Y	(X,Y)
0	0	(0,0)
1	0 + 1 = 1	(1,1)
2	1 + 1 = 2	(2,2)
3	2 + 1 = 3	(3,3)
4	3 + 1 = 4	(4,4)

Pixel Positions

Line: (0,0) to (4,4)



Any

QUESTION

OR

DOUBT