# Computer Graphics

**Unit 2** : Scan conversion lines, circle & Ellipses, Polygon filling Algo. & clipping Algorithms.

## * Line Drawing Algorithms :

### * DDA Algorithm ( Digital Differential Analyzer)

⇒ co-ordinates will be given.

- First, find out the slope : $m = \frac{\Delta y}{\Delta x}$

- Secondly, find $\Delta x$ & $\Delta y$.

Then, there are two diff. cases

1) If $|\Delta x| \geq |\Delta y|$ ; if it satisfies the condition then calculate $x_{i+1}$ & $y_{i+1}$

then assign $\Delta x = 1$

→ $x_{i+1} = x_i + \Delta x$

$= x_i + 1$

→ $y_{i+1} = y_i + \Delta y = y_i + m \cdot \Delta x = y_i + m$

P.T.O.

2) If $|\Delta x| < |\Delta y|$ ; calculate $x_{i+1}$ ; $y_{i+1}$

then assign $\Delta y = 1$

$$x_{i+1} = x_i + \Delta x = x_i + \frac{\Delta y}{m} = x_i + \frac{1}{m}$$

$$y_{i+1} = y_i + \Delta y = y_i + 1$$

$\Rightarrow$ - create the table aside with it of $x_i, y_i, x_{i+1}, y_{i+1}$.

- follow the above 2 cases till you reach $x_2, y_2$.