Experiment No.02

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Aim: To implement Bresenham Line drawing algorithm.

Algorithm:

1. Input the two line endpoints and store the left endpoint in(x0,y0)
2. Load (x0, y0) into the frame buffer; that is, plot the first point.
3. Calculate constants Δx, Δy, 2 Δy and 2 Δy -2 Δx, and obtain the starting value for the decision parameter as: p0 = 2 Δy – Δx
4. At each xk, the next point the line , starting at k=0, perform the following test: If pk < 0 , the next point to plot is (xk + 1 ,yk) and pk+1 = pk + 2 Δy

Otherwise, the next point to plot is (xk + 1, yk +1) and pk+1

= pk + 2 Δy – 2 Δx

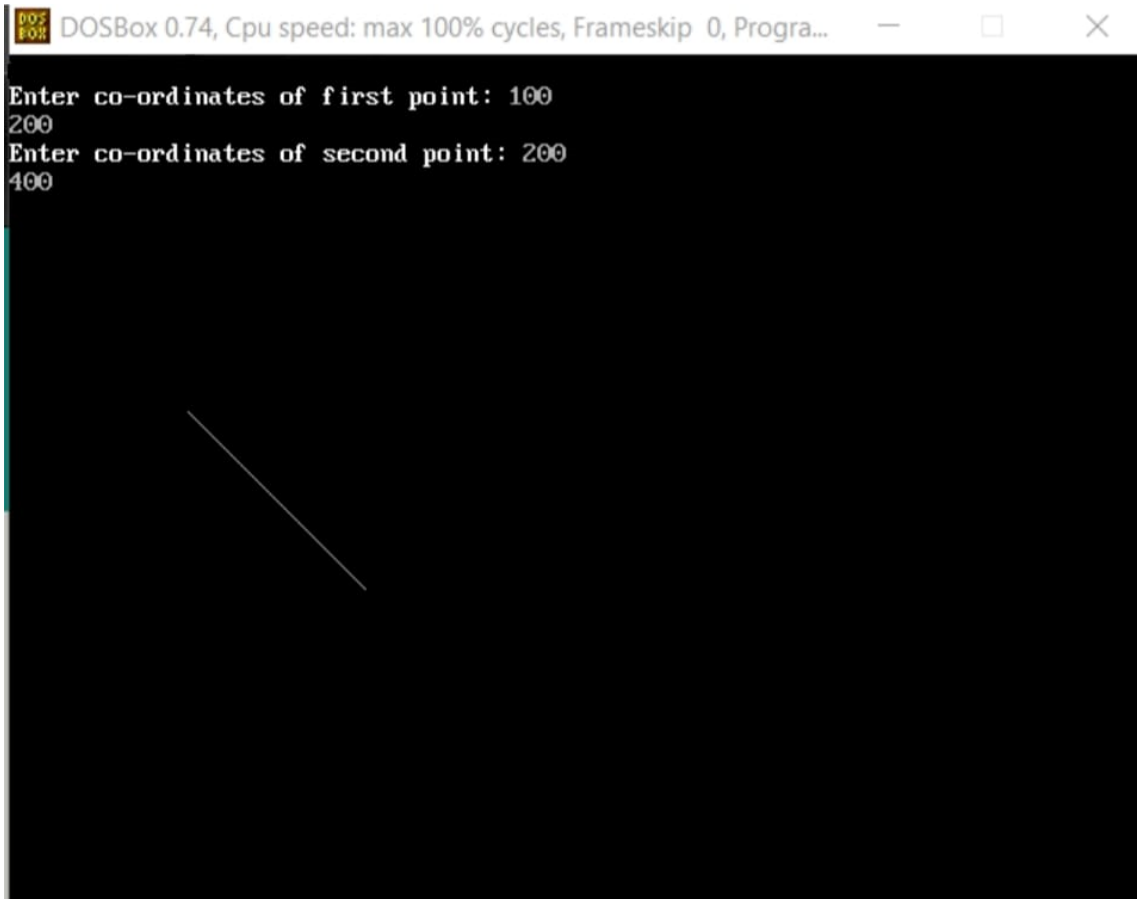
5. Repeat step 4 Δx times.

Code:

```
#include<stdio.h>
#include<graphics.h>

void drawline(int x0, int y0, int x1, int y1)
{    int dx, dy, p, x,
y;

dx=x1-x0; dy=y1-y0;
x=x0; y=y0;

p=2*dy-dx;
```

```
while(x<x1)
{
if(p>=0)
{
putpixel(x,y,7); y=y+1;
p=p+2*dy-2*dx;
}
else
{
putpixel(x,y,7); p=p+2*dy;
}
x=x+1;
}
}

int main()
{
int gdriver=DETECT, gmode, error, x0, y0, x1, y1; initgraph(&gdriver,
&gmode, "c:\\turboc3\\bgi");

printf("Enter co-ordinates of first point: "); scanf("%d%d",
&x0, &y0);

printf("Enter co-ordinates of second point: "); scanf("%d%d", &x1, &y1);
drawline(x0, y0, x1, y1);

return 0;
}
```

Output:


DOSBox 0.74, Cpu speed: max 100% cycles, Frameskip 0, Progra...
Enter co-ordinates of first point: 100
200
Enter co-ordinates of second point: 200
400