

# END-TERM PRACTICAL

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## Bresenham Line Drawing Algorithm

Ques1:-

```
#include <stdio.h>
#include <conio.h>
#include <graphics.h>
void main()
{
    float x, y, x1, y1, x2, y2, dx, dy, steps, p;
    int i = 1, gd = DETECT, gm;
    printf("Enter (x1, y1):");
    scanf("%f %f", &x1, &y1);
    printf("Enter (x2, y2):");
    scanf("%f %f", &x2, &y2);
    initgraph(&gd, &gm, "");
    dx = x2 - x1;
    dy = y2 - y1;
    steps = dx - 1;
    int pk = (2 * dy) - dx;
    p = pk;
    x = x1;
    y = y1;
    while (i <= steps)
    {
        if (p < 0)
        {
            putpixel(x, y, BLUE);
            x = x + 1;
            y = y;
            p = p + (2 * dy);
            delay(50);
        }
        else
        {
            putpixel(x, y, BLUE);
            x = x + 1;
            y = y + 1;
            p = p + (2 * dy) - dx;
            delay(50);
        }
        i++;
    }
}
```

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```
else else {  
    putpixel(x, y, BLUE);  
    x = x + 1;  
    y = y + 1;  
    p = p + (g * dy) - (g * dx);  
    delay(50);  
}  
i++;  
getch();  
closegraph();  
}
```

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Step 1:- Start Algorithm.

Step 2:- ~~Enter~~ Declare Variable  $x, y, y_1, x_1, x_2, y_2, dx, dy, Steps, p;$

Step 3:- Calculate  $dy = y_2 - y_1;$   
 $dx = x_2 - x_1;$

~~$pk = (2 * dy) - dx;$~~   
Enter the Value of  $x_1, y_1, x_2, y_2$

Where  $x_1, y_1$  are Co-ordinates of starting point  
and  $x_2, y_2$  are Co-ordinates of Ending point.

Step 4:- Calculate  $dx = x_2 - x_1.$

$$dy = y_2 - y_1$$

$$pk = 2 * dy - dx.$$

Step 5:- Consider  $(x, y)$  as starting point &  $x_{end}$  as maximum possible value of  $x$ .

if  $(p < 0)$

$$x = x_1 + 1;$$

$$y = y_1 + 1;$$

If  $p > 0$ , then  $x = x_1$

$$y = y_1$$

Step 6:- Generate point at  $(x, y)$  Coordinates.

Step 7:- Check if whole line is generated.

Step 8:- Stop.

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