Practical 3

Task 1 : Write a program to draw a line using Bresenham's Line Drawing algorithm and "Graphics.h".

Source Code:

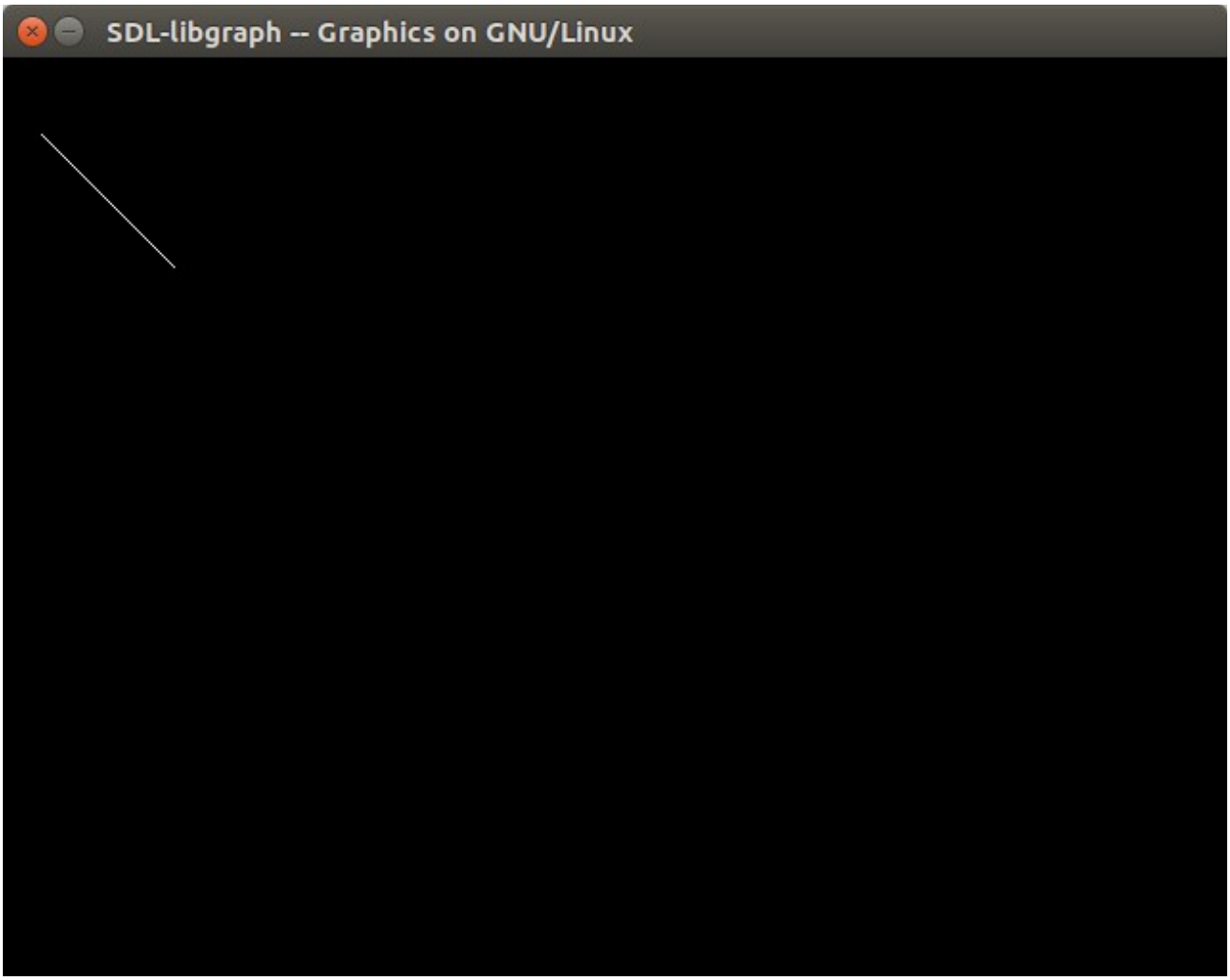
```
#include<graphics.h>
#include<stdio.h>

int main()
{
  int gd = DETECT,gm;
  int xa,ya,xb,yb;
  float xi,yi,steps;
  printf("Enter the starting point");
  scanf("%d %d",&xa,&ya);
  printf("Enter the ending point");
  scanf("%d %d",&xb,&yb);
  initgraph(&gd,&gm,NULL);
  if((xb<xa && yb<ya)||(xb>xa && yb>ya))
  {
   if (xb<xa && yb<ya)
   {
    int temp=xb;
    xb=xa;
    xa=temp;
    temp=yb;
    yb=ya;
    ya=temp;
   }
   int dx = xb-xa;
   int dy = yb-ya;
   int D = dy-dx;
   int y = ya;
   for ( int x = xa;x<xb;x++)
   {
    putpixel(x,y,WHITE);
    if ( D>=0)
    {
     y++;
     D=D-dx;
```

```
      }
      D=D+dy;
    }
  }
  else
  {
    if (xb<xa && yb>ya)
    {
      int temp=xb;
      xb=xa;
      xa=temp;
      temp=yb;
      yb=ya;
      ya=temp;
    }
    int dx = xb-xa;
    int dy = yb-ya;
    int D = dy-dx;
    int x = xa;
    for ( int y = ya;y>yb;y--)
    {
      putpixel(x,y,WHITE);
      if ( D>=0)
      {
        x++;
        D=D-dy;
      }
      D=D+dx;
    }
  }
  delay(5000);
  closegraph();
  return 0;
}
```

Output:

For Positive Slope:

```
adnrs96@aditya-hp-envy-15-notebook-pc:/media/adnrs96/Local Disk/Local Disk(G)/CG
$ gcc prac_3_Breshman_algo.c -lgraph
adnrs96@aditya-hp-envy-15-notebook-pc:/media/adnrs96/Local Disk/Local Disk(G)/CG
$ ./a.out
Enter the starting point20
40
Enter the ending point90
120
```



For Negative Slope:

```
adnrs96@aditya-hp-envy-15-notebook-pc:/media/adnrs96/Local Disk/Local Disk(G)/CG
$ ./a.out
Enter the starting point20
500
Enter the ending point300
90
```