Lab Report. 01

Title: Lab Report

Course title: Computer Graphics Lab

Course code: CSE-304

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Submitted to-

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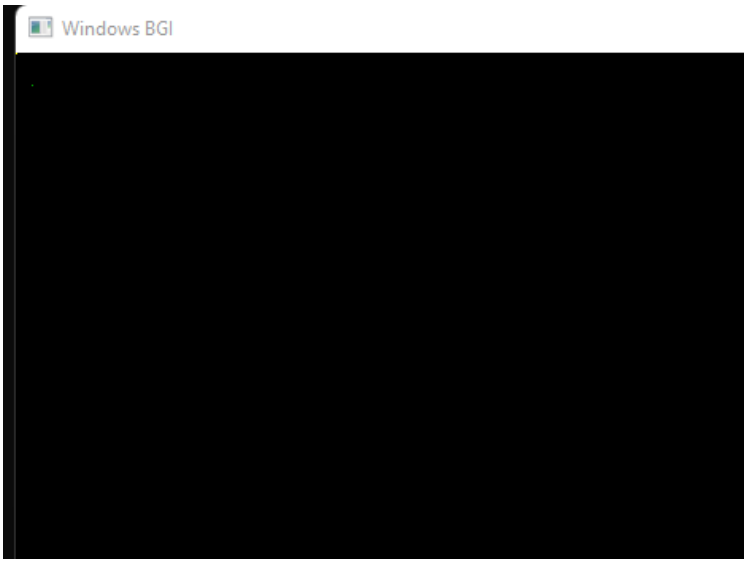
Experiment 01:

Name of Experiment: Scan Conversion of a point.

Source Code:

```
#include<bits/stdc++.h>
#include<graphics.h>
using namespace std;
int main()
{
   int gd = DETECT, gm;
   initgraph(&gd, &gm, "c:\\TC\\BGI");
   float x = 10, y = 20;

   putpixel(x,y,GREEN);
   getch();
   closegraph();
   return 0;
}
```

Output:



Experiment 02:

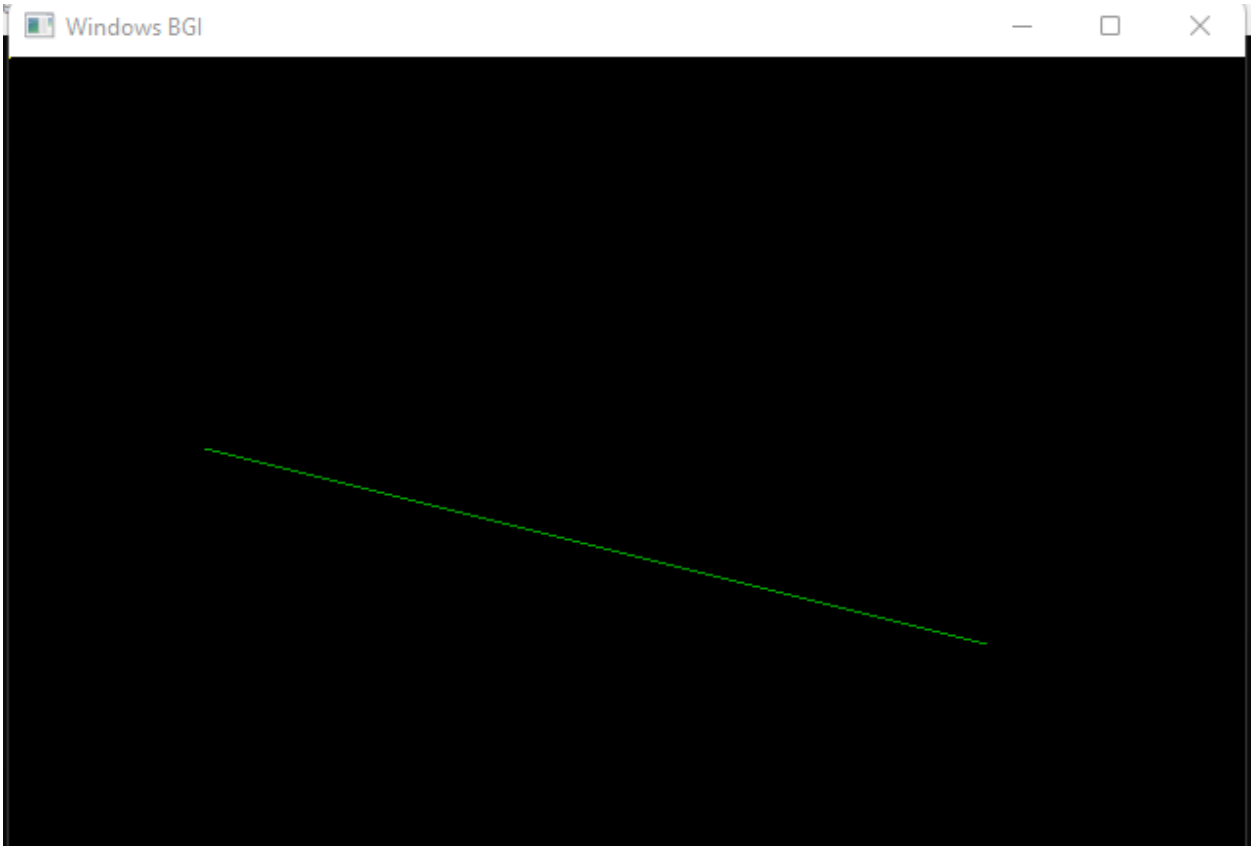
Name of Experiment: Scan Converting a line using DDA Algorithm.

Source Code:

```
#include<graphics.h>
#include<conio.h>
#include<stdio.h>
#include <sstream>
int main()
{
   int gd = DETECT,gm, i;
   float x, y,dx,dy,steps;
   int x0, x1, y0, y1;
   initgraph(&gd, &gm, "C:\\TC\\BGI");
   setbkcolor(GREEN);
   x0 = 100, y0 = 200, x1 = 500, y1 = 300;
   dx = (float)(x1 - x0);
   dy = (float)(y1 - y0);
   if(dx>=dy)
   {
      steps = dx;
   }
   else
   {
      steps = dy;
   }
   dx = dx/steps;
   dy = dy/steps;
```

```
 x = x0;
   y = y0;
   i = 1;
   while(i<= steps)
   {
      putpixel(x, y, GREEN);
      x += dx;
      y += dy;
      i=i+1;
   }
   getch();
   closegraph();
}
```

Output:



Experiment 03:

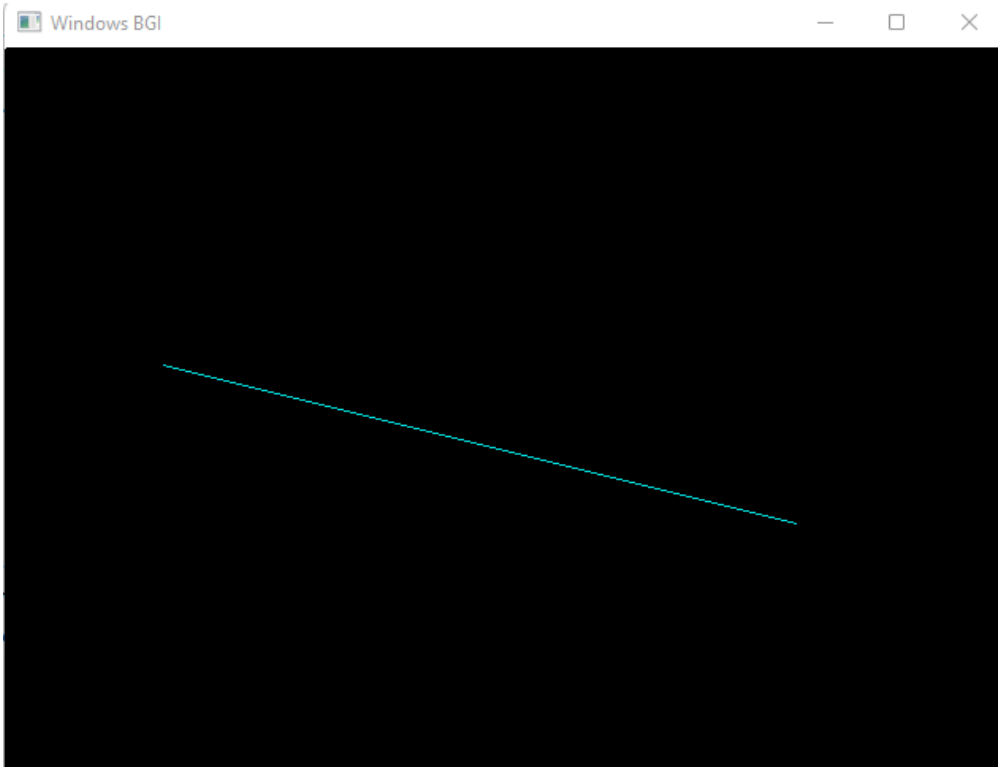
Name of Experiment: Scan Converting a line using Bresenham's Algorithm.

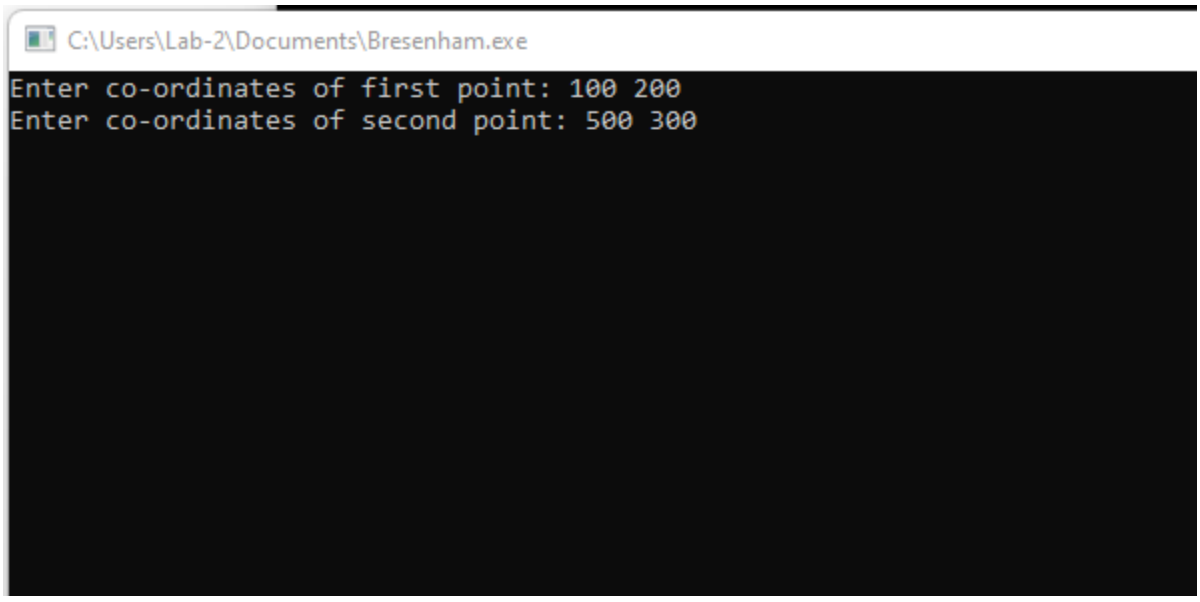
Source Code:

```
#include<stdio.h>
#include<graphics.h>
#include<bits/stdc++.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,3);
         y=y+1;
         p=p+2*dy-2*dx;
      }
      else
      {
         putpixel(x,y,3);
         p=p+2*dy;}
```

```
        x=x+1;
      }
}
int main()
{
   int gd =DETECT, gm;

   int error, x0, y0, x1, y1;

   initgraph(&gd, &gm, "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); getch();
   return 0;
}
```

Output:


Windows BGI


C:\Users\Lab-2\Documents\Bresenham.exe
Enter co-ordinates of first point: 100 200
Enter co-ordinates of second point: 500 300

Experiment 04:

Name of Experiment: Scan Converting a Circle using Bresenham's Circle Algorithm.

Source Code:

```
#include <graphics.h>
#include <stdlib.h>
#include <stdio.h>
#include <conio.h>
#include <math.h>

  void    EightWaySymmetricPlot(int xc,int yc,int x,int y)
 {
  putpixel(x+xc,y+yc,RED);
  putpixel(x+xc,-y+yc,YELLOW);
  putpixel(-x+xc,-y+yc,GREEN);
  putpixel(-x+xc,y+yc,YELLOW);
  putpixel(y+xc,x+yc,12);
  putpixel(y+xc,-x+yc,14);
  putpixel(-y+xc,-x+yc,15);
  putpixel(-y+xc,x+yc,6);
 }

  void BresenhamCircle(int xc,int yc,int r)
 {
  int x=0,y=r,d=3-(2*r);
```

```
 EightWaySymmetricPlot(xc,yc,x,y);

 while(x<=y)
  {
   if(d<=0)
         {
     d=d+(4*x)+6;
   }
  else
   {
     d=d+(4*x)-(4*y)+10;
     y=y-1;
   }
    x=x+1;
    EightWaySymmetricPlot(xc,yc,x,y);
   }
 }

 int  main(void)
{
 int xc,yc,r,gdriver = DETECT, gmode, errorcode;
  initgraph(&gdriver, &gmode, "C:\\TURBOC3\\BGI");
  errorcode = graphresult();

   if (errorcode != grOk)
  {
     printf("Graphics error: %s\n", grapherrormsg(errorcode));
```

```
    printf("Press any key to halt:");
    getch();
    exit(1);
  }
   printf("Enter the values of xc and yc :");
   scanf("%d%d",&xc,&yc);
   printf("Enter the value of radius  :");
   scanf("%d",&r);
   BresenhamCircle(xc,yc,r);
 getch();
 closegraph();
 return 0;
}
```

Output: