Lab Report. 01

Course title: Computer Graphics Lab

Course code: CSE-304

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Submitted to-

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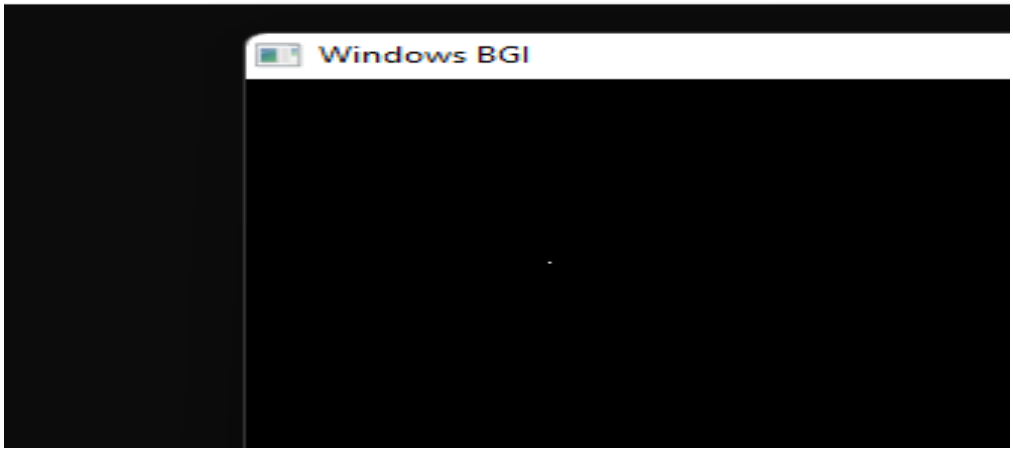
1.Scan conversion of a point

Sourcecode:

```
#include <bits/stdc++.h>
#include<graphics.h>
int main()
{
      int gd = DETECT, gm;

   initgraph(&gd,&gm, "Hello");
    putpixel(100,100,WHITE);
    getch();
    closegraph();
}
```

Output:



2.Scan conversion of a line using DDA Algorithm

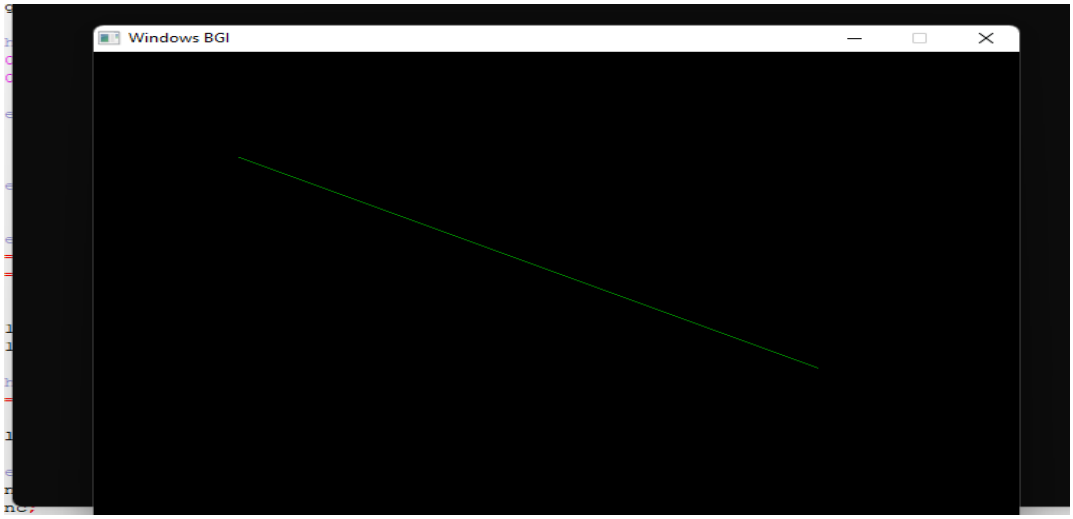
Sourcecode:

```
#include <bits/stdc++.h>
#include <graphics.h>
int main()
{
    int gd = DETECT, gm;
    initgraph(&gd, &gm, "hello");
    int x1 = 100, y1 = 100;
    int x2 = 500, y2 = 300;
    int dx = x2 - x1;
    int dy = y2 - y1;
  int steps = abs(dx) > abs(dy) ? abs(dx) : abs(dy);
float xInc = dx / (float)steps;
float yInc = dy / (float)steps;
float x = x1;
```

```
    float y = y1;
     for (int i = 0; i <= steps; i++)
    {
        putpixel(x, y, GREEN);

        x += xInc;
        y += yInc;
    }
    getch();
    closegraph();
    return 0;
}
```

Output:



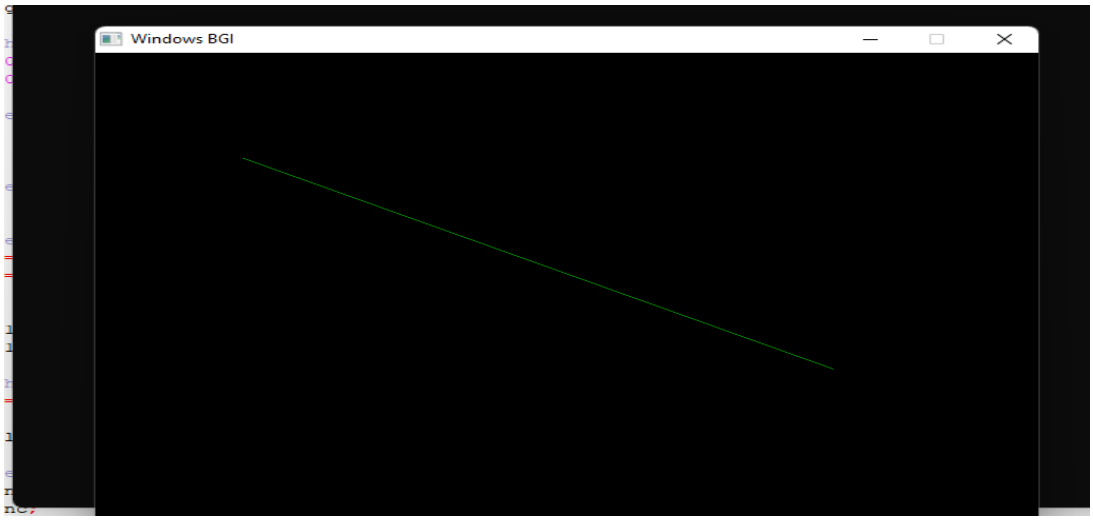
3.Scan conversion of a line using Bresenham Algorithm:

Sourcecode:

```
#include <bits/stdc++.h>
#include <graphics.h>
void drawLine(int x1, int y1, int x2, int y2)
{
    int dx = abs(x2 - x1);
    int dy = abs(y2 - y1);
    int sx = (x1 < x2) ? 1 : -1;
    int sy = (y1 < y2) ? 1 : -1;
    int err = dx - dy;
    while (true)
    {
        putpixel(x1, y1, GREEN);
        if (x1 == x2 && y1 == y2)
            break;
        int e2 = 2 * err;
        if (e2 > -dy)    {
            err -= dy;
            x1 += sx;
   if (e2 < dx)
        {
```

```
            err += dx;
            y1 += sy;
        }
    }
}
int main()
{
    int gd = DETECT, gm;
    initgraph(&gd, &gm, "hello");
    int x1 = 100, y1 = 100;
    int x2 = 500, y2 = 300;
    drawLine(x1, y1, x2, y2);
    getch();
    closegraph();
    return 0;
}
```

Output:



4.Scan conversion of circle using Bresenham Algorithm:

Sourcecode:

```
#include <bits/stdc++.h>
#include <graphics.h>
void drawCircle(int xc, int yc, int radius)
{
    int x = 0;
    int y = radius;
    int d = 3 - 2 * radius;
    while (x <= y)
    {
        putpixel(xc + x, yc + y, GREEN);
        putpixel(xc - x, yc + y, GREEN);
        putpixel(xc + x, yc - y, GREEN);
        putpixel(xc - x, yc - y, GREEN);
```

```
    else
      {
         d += 4 * (x - y) + 10;
         y--;
      }
      x++;
   }
}
int main()
{
   int gd = DETECT, gm;
   initgraph(&gd, &gm, "hello");
   int xc = 200, yc = 200;
   int radius = 200;
   drawCircle(xc, yc, radius);
   getch();
   closegraph();
   return 0;
}
```

Output: