**Lab Report. 03**

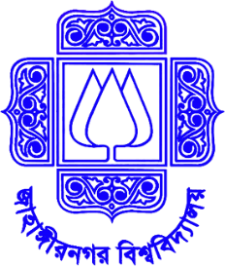
**Title: Lab Report**

*Course title: Computer Graphics Lab*

*Course code: CSE-304*

*3rd Year 1st Semester 2022*

**Date of Submission**: 11/06/2023



###### **Submitted to-**

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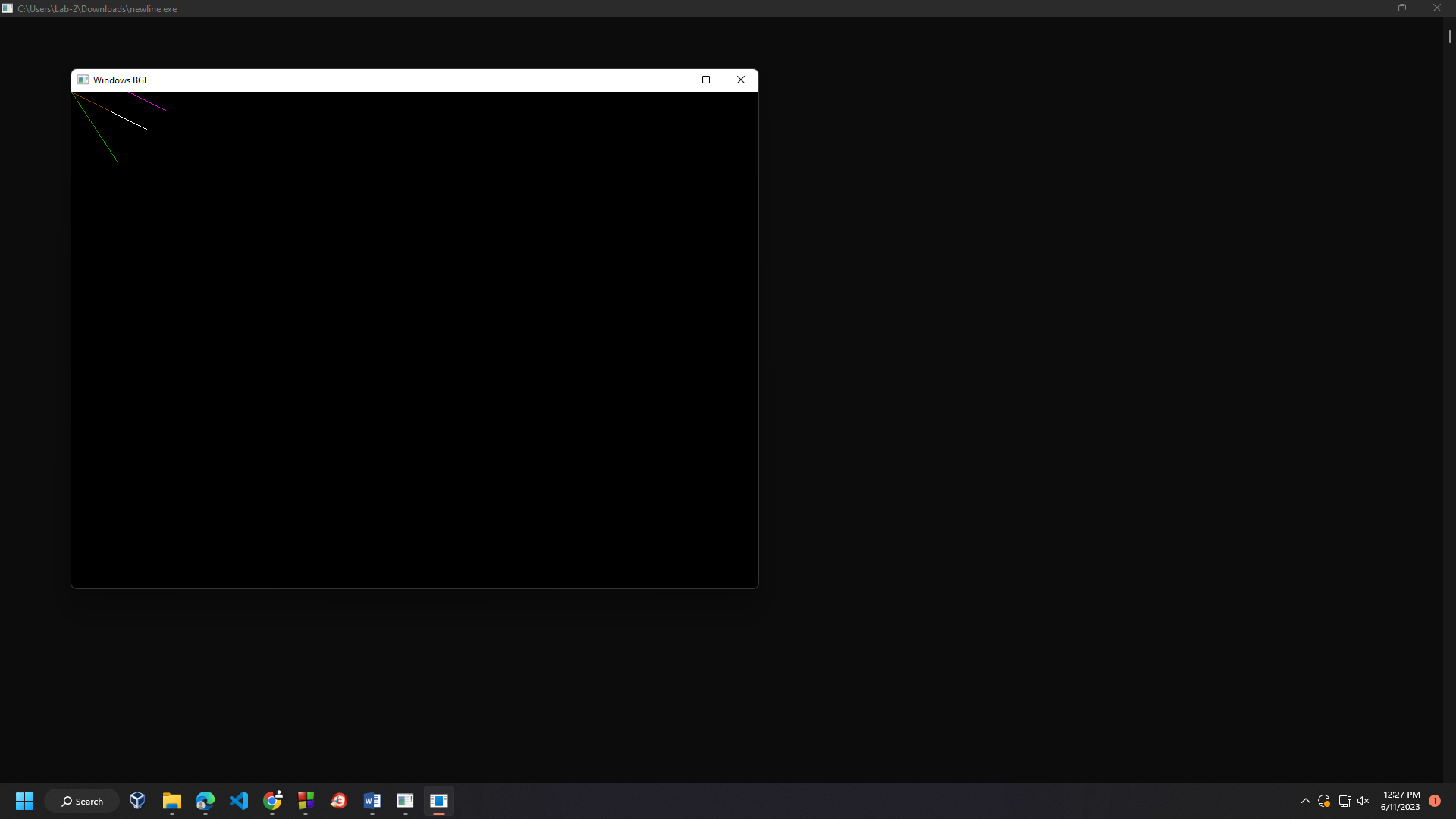
Scan conversion of a line object from (0, 0) to (100, 50):

1. Rotate it by 30 degree.
2. Scale it by 50%.
3. Translate it on x-axis by 75 pixels.

Source code:

|  |  |
| --- | --- |
| #include<iostream>  #include<graphics.h>  #include<math.h>  using namespace std;  int main()  {  int gd = DETECT,gm;  initgraph(&gd,&gm,"");  int x1=0,y1=0,x2=100,y2=50;  line(x1,y1,x2,y2);  float angle = 30\* 3.14158/180;  int x1\_rotated = (x1)\*cos(angle)-(y1)\*sin(angle);  int y1\_rotated =(x1)\*sin(angle)+(y1)\*cos(angle);  int x2\_rotated = (x2)\*cos(angle)-(y2)\*sin(angle);  int y2\_rotated = (x2)\*sin(angle)+(y2)\*cos(angle); | setcolor(GREEN);  line(x1\_rotated,y1\_rotated,x2\_rotated,y2\_rotated);  int x1\_scaled = x1 \* 0.5;  int y1\_scaled = y1 \* 0.5;  int x2\_scaled = x2 \* 0.5;  int y2\_scaled = y2 \* 0.5;  setcolor(BROWN);  line(x1\_scaled,y1\_scaled,x2\_scaled,y2\_scaled);  int x1\_translated = x1\_scaled + 75;  int y1\_translated = y1\_scaled;  int x2\_translated = x2\_scaled + 75;  int y2\_translated = y2\_scaled;  setcolor(MAGENTA);  line(x1\_translated,y1\_translated,x2\_translated,y2\_translated);  getch();  closegraph();  } |

Output:



Drawing a kite using Brasenham line algorithm:

Source code:

|  |  |
| --- | --- |
| #include<bits/stdc++.h>  #include<graphics.h>  using namespace std;  void drawkite(int x, int y, int width, int height)  {  int x1 = x - width/2;  int y1 = y;  int x2 = x;  int y2 = y- height/2;  int x3 = x+ width/2;  int y3 = y;  int x4 = x;  int y4 = y+ height/2;  line(x1,y1,x2,y2);  line(x2,y2,x3,y3);  line(x3,y3,x4,y4);  line(x4,y4,x1,y1);  } | int main()  {  int gd = DETECT, gm;  initgraph(&gd,&gm,"");  int width = 800;  int height = 600;  int x = width/2;  int y = height/2;  int kitewidth = 200;  int kiteheight = 300;  drawkite(x,y,kitewidth,kiteheight);  getch();  closegraph();  } |

Output:

