Lab Report:
Title:

Course title: Computer Graphics Laboratory
Course code: CSE-304
3rd Year 1st Semester Examination 2022

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Submitted to-

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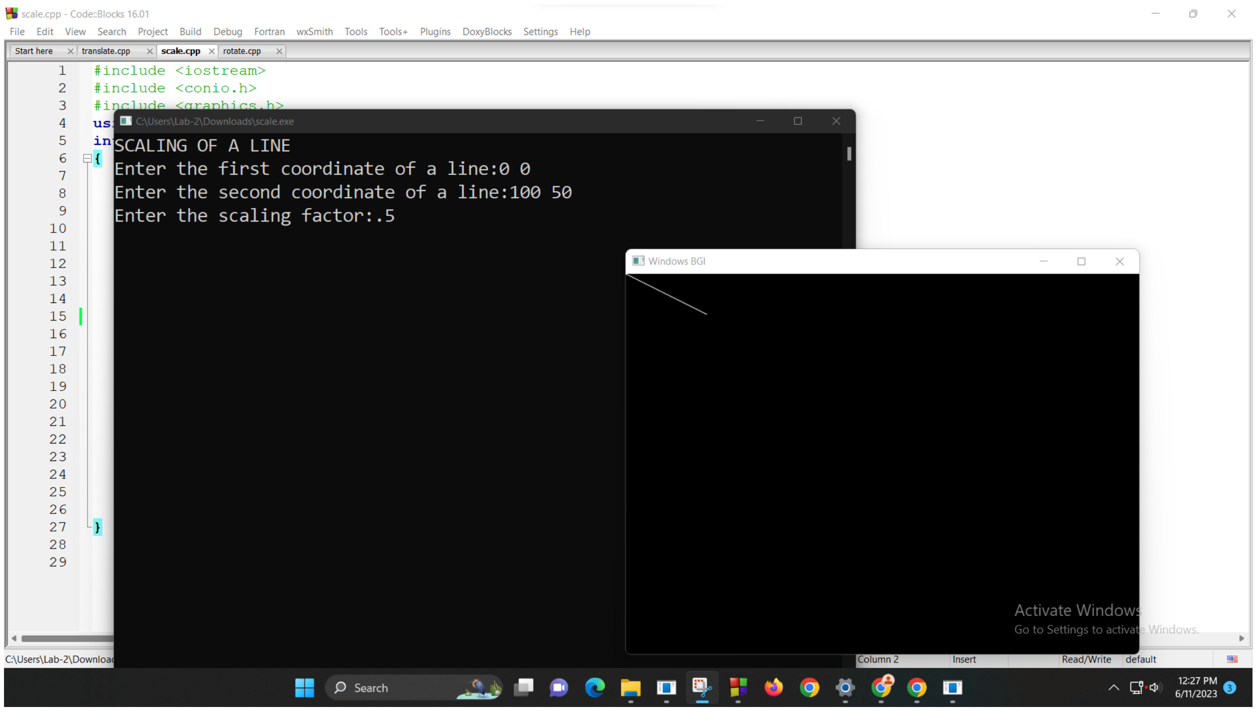
1. Roate:

Code:

```
#include <math.h>

#include <conio.h>

#include <graphics.h>

#include<bits/stdc++.h>

#define PI acos(-1)

using namespace std;

void drawline(double x0, double y0, double x1, double y1)

{

    double 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,RED);

            y=y+1;

            p=p+2*dy-2*dx;

        }

        else
        {
            putpixel(x,y,RED);
            p=p+2*dy;
        }
        x=x+1;
    }
}

int main()
{
    int gd=0,gm,x1,y1,x2,y2,x3,x4,y3,y4;
    double s,c, angle;
    initgraph(&gd,&gm,"C:\\Tc\\BGI");
    x1=0,y1=0,x2=100,y2=150;
    printf("(x1,y1)=(%d, %d) and (x2,y2)=(%d,%d)\n",x1,y1,x2,y2);
    drawline(x1,y1,x2,y2);
    setcolor(CYAN);
    angle=30;
    c = cos(angle * PI /180);
    s = sin(angle * PI /180);
    x3 = floor(x1 * c + y1 * s);
    y3 = floor(-x1 * s + y1 * c);
    x4 = floor(x2 * c + y2 * s);
    y4 = floor(-x2 * s + y2 * c);
    printf("After 30degree rotation keeping (x1,y1) unchanged
(x2,y2)=(%d, %d)",x4,y4);
```

```
     drawline(x1,y1,x4,y4);
    getch();
     closegraph();
     return 0;
}
```

Output:

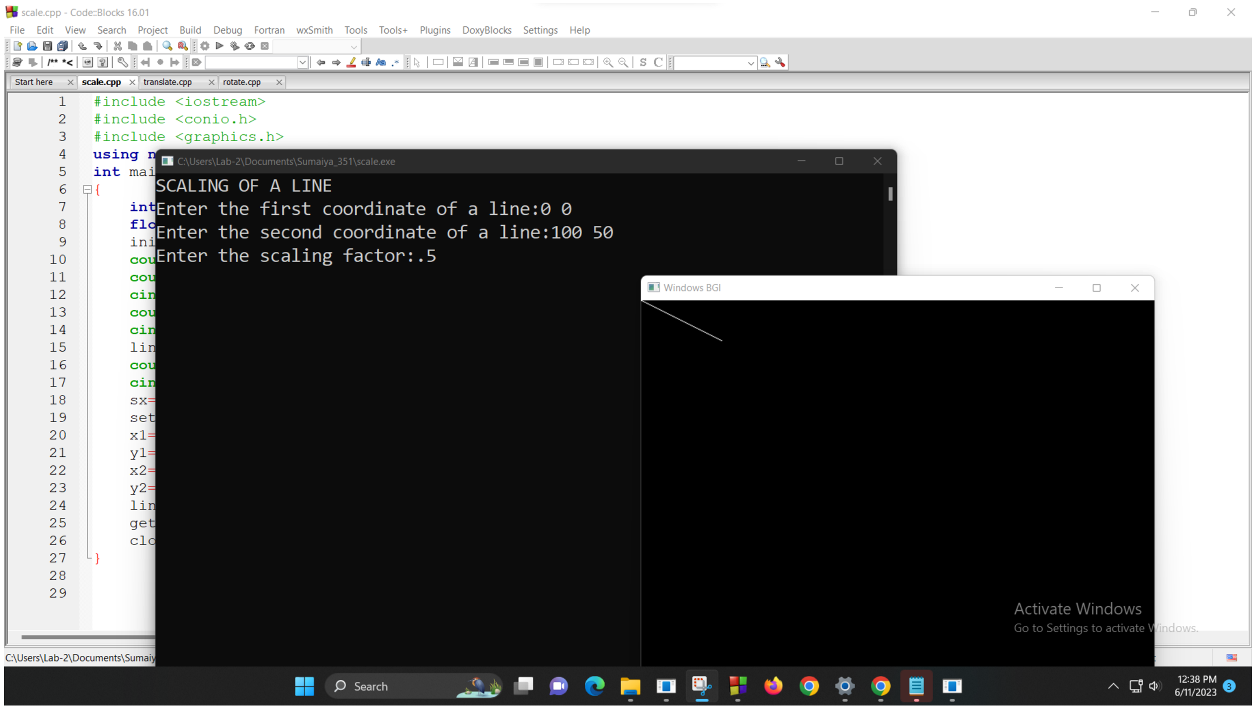


```
SCALING OF A LINE
Enter the first coordinate of a line:0 0
Enter the second coordinate of a line:100 50
Enter the scaling factor:.5
```

Scale:

```
#include <iostream>

#include <conio.h>

#include <graphics.h>

using namespace std;

int main()

{

    int gd=DETECT,gm;

    float x1,y1,x2,y2,sx,sy,s;

    initgraph(&gd,&gm,"C:\\Tc\\BGI");

    cout<<"SCALING OF A LINE\n";

    cout<<"Enter the first coordinate of a line:";

    cin>>x1>>y1;

    cout<<"Enter the second coordinate of a line:";

    cin>>x2>>y2;

    line(x1,y1,x2,y2);

    cout<<"Enter the scaling factor:";

    cin>>s;

    sx=s/100,sy=s/100;

    setcolor(RED);

    x1=x1*sx;

    y1=y1*sy;

    x2=x2*sx;

    y2=y2*sy;

    line(x1,y1,x2,y2);
    getch();
    closegraph();
}
```

Output:

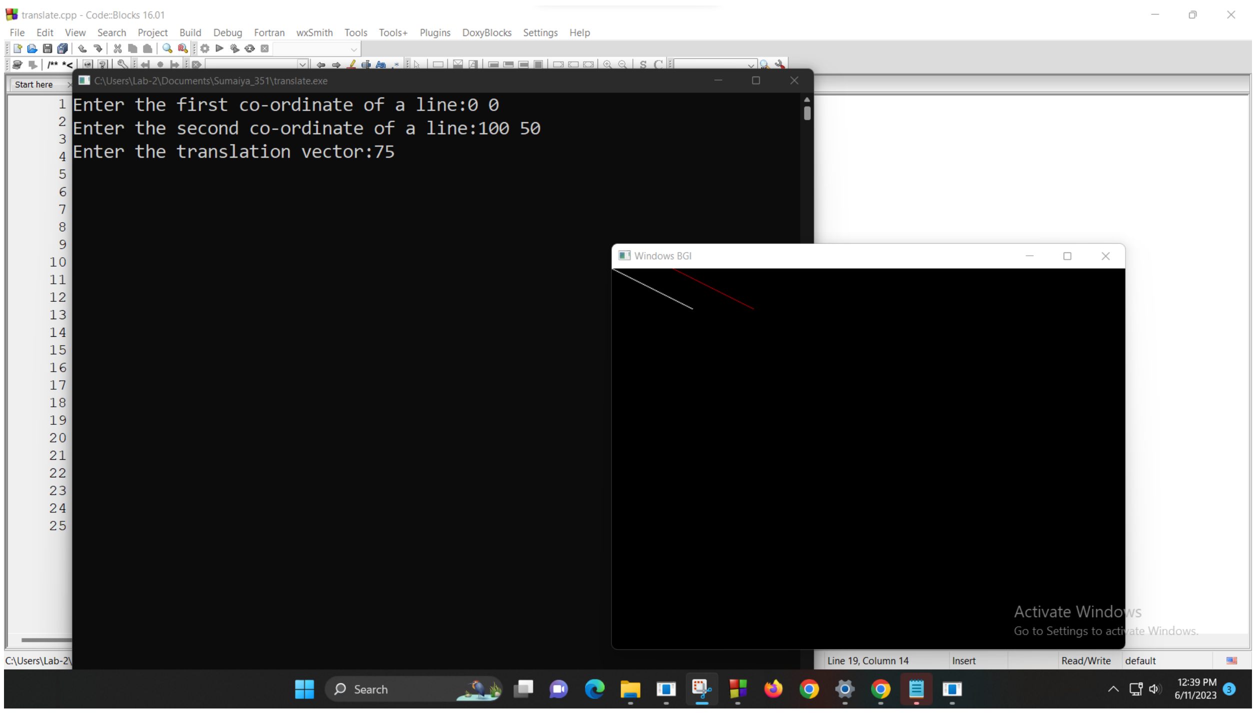


```
SCALING OF A LINE
Enter the first coordinate of a line:0 0
Enter the second coordinate of a line:100 50
Enter the scaling factor:.5
```

Translate:

```
 #include <iostream>
#include <conio.h>
#include <graphics.h>

using namespace std;
int main()
{
     int gd=DETECT,gm,x1,x2,y1,y2,tx,ty;
     initgraph(&gd,&gm,"C:\\Tc\\BGI");
     cout<<"Enter the first co-ordinate of a line:";
     cin>>x1>>y1;
     cout<<"Enter the second co-ordinate of a line:";
     cin>>x2>>y2;
     line(x1,y1,x2,y2);
     cout<<"Enter the translation vector:";
     cin>>tx;
     setcolor(RED);
     x1=x1+tx;
     x2=x2+tx;
     line(x1,y1,x2,y2);
     getch();
     closegraph();
}
```

Output:



```
Enter the first co-ordinate of a line:0 0
Enter the second co-ordinate of a line:100 50
Enter the translation vector:75
```

translate.cpp - Code::Blocks 16.01
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help
C:\Users\Lab-2\Documents\Sumaiya_351\translate.exe
Windows BGI
Activate Windows
Go to Settings to activate Windows.
Line 19, Column 14
Insert
Read/Write
default
12:39 PM
6/11/2023