

**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);

```

```

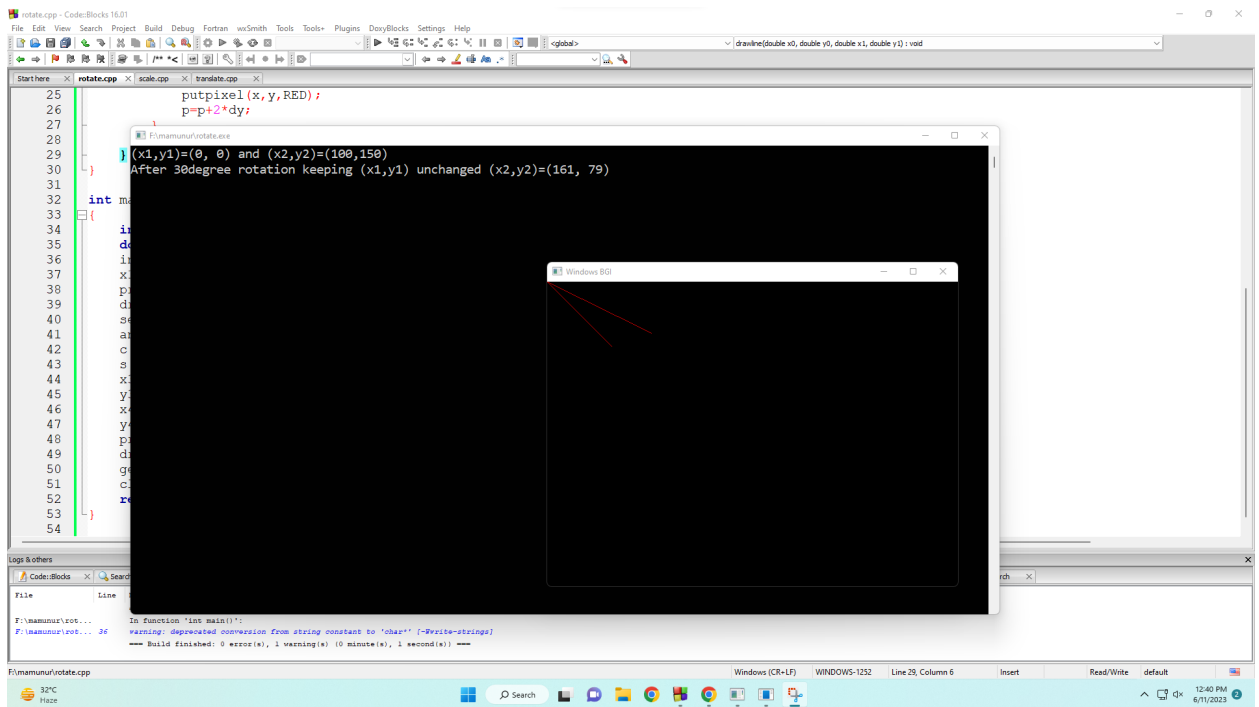
    getch();

    closegraph();

    return 0;
}

```

Output:

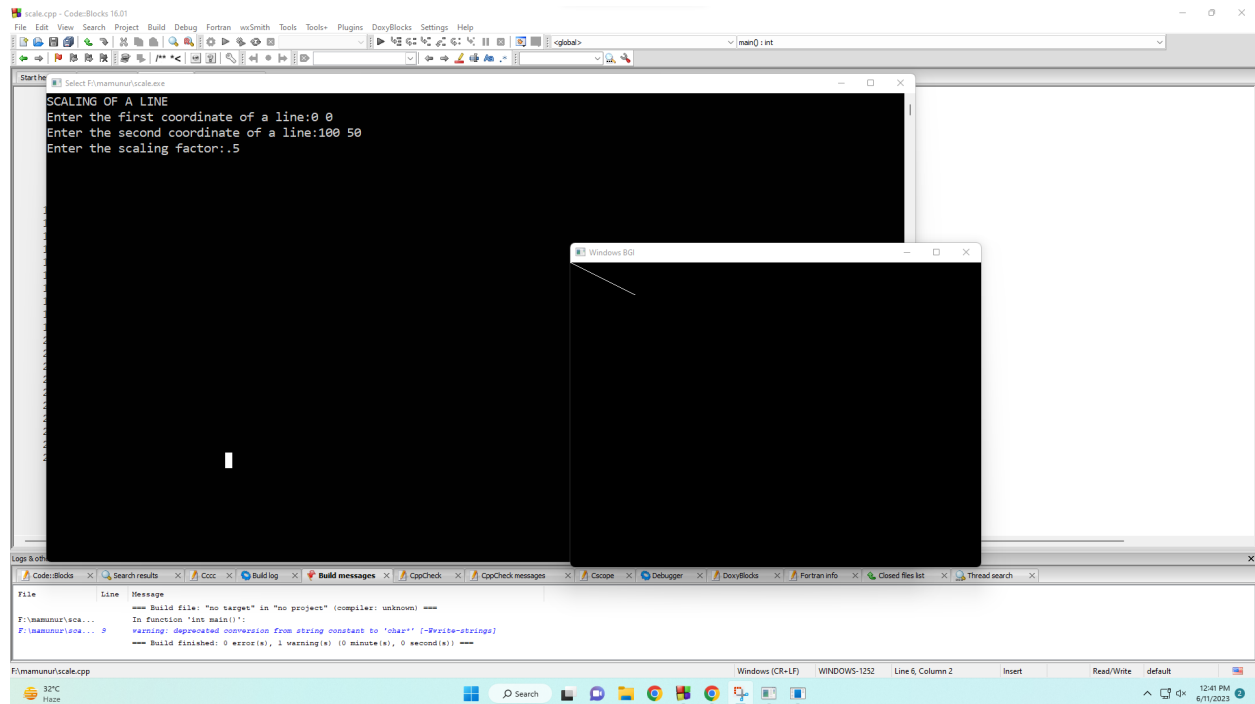


Scale:

```
#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:



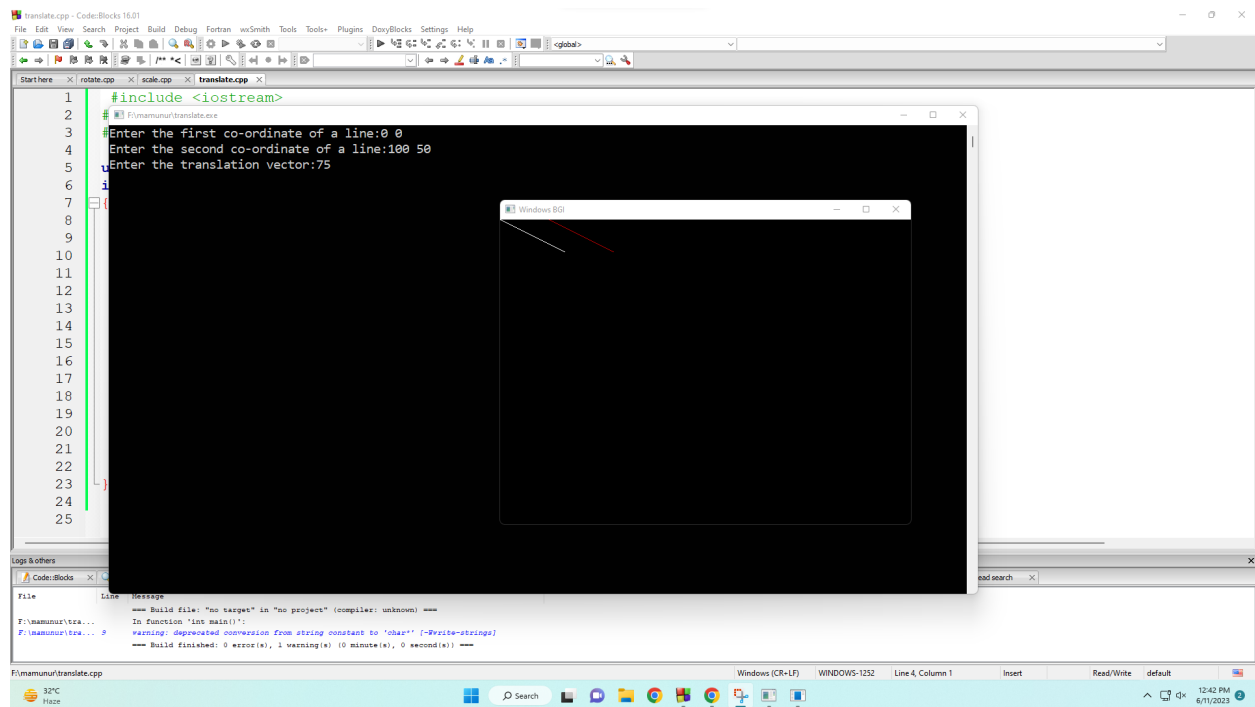
Translate:

```
#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 :



The screenshot displays the Code::Blocks IDE with a C++ program open. The program prompts the user to enter the first co-ordinate of a line, the second co-ordinate of a line, and the translation vector. The user has entered 0 0, 100 50, and 75 respectively. The output window shows a black screen with a white line segment and a red line segment, representing the original and translated lines. The status bar at the bottom indicates the current line and column.

```
1 #include <iostream>
2
3 Enter the first co-ordinate of a line:0 0
4 Enter the second co-ordinate of a line:100 50
5 Enter the translation vector:75
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```

Build file: "no target" in "no project" (compiler: unknown) ==
In function 'int main()':
warning: deprecated conversion from string constant to 'char*' [-Wwrite-strings]
Build finished: 0 error(s), 1 warning(s) (0 minute(s), 0 second(s)) ==