Assignment No: 2_5_3

Problem Statement :

Write c++ program to generate fractal patterns by using Koch curves.

SOURCE CODE :

```
#include <stdio.h>
#include <conio.h>
#include <math.h>
#include <graphics.h>
#include <dos.h>
void koch(int x1, int y1, int x2, int y2, int it)
{
    float ang = 60 * M_PI / 180;
    int x3 = (2 * x1 + x2) / 3;
    int y3 = (2 * y1 + y2) / 3;

    int x4 = (x1 + 2 * x2) / 3;
    int y4 = (y1 + 2 * y2) / 3;

    int x = x3 + (x4 - x3) * cos(ang) + (y4 - y3) * sin(ang);
    int y = y3 - (x4 - x3) * sin(ang) + (y4 - y3) * cos(ang);

    if (it > 0)
    {
        koch(x1, y1, x3, y3, it - 1);
        koch(x3, y3, x, y, it - 1);
        koch(x, y, x4, y4, it - 1);
        koch(x4, y4, x2, y2, it - 1);
    }
    else
    {
        //delay(100);
        line(x1, y1, x3, y3);
        //delay(100);
        line(x3, y3, x, y);
        //delay(100);
        line(x, y, x4, y4);
        //delay(100);
        line(x4, y4, x2, y2);
        //delay(100);
    }
}
```

```c
int main()
{
    int gd = DETECT, gm;
    initgraph(&gd, &gm, "c:\\TURBOC3\\BGI");
    int x1 = 100, y1 = 100, x2 = 400, y2 = 400;

    line(100, 100, 400, 400);
    //delay(50);
    koch(x1, y1, x2, y2, 5);
    getch();
    return 0;
}
```