**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);**

**}**

**}**

**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;**

**}**