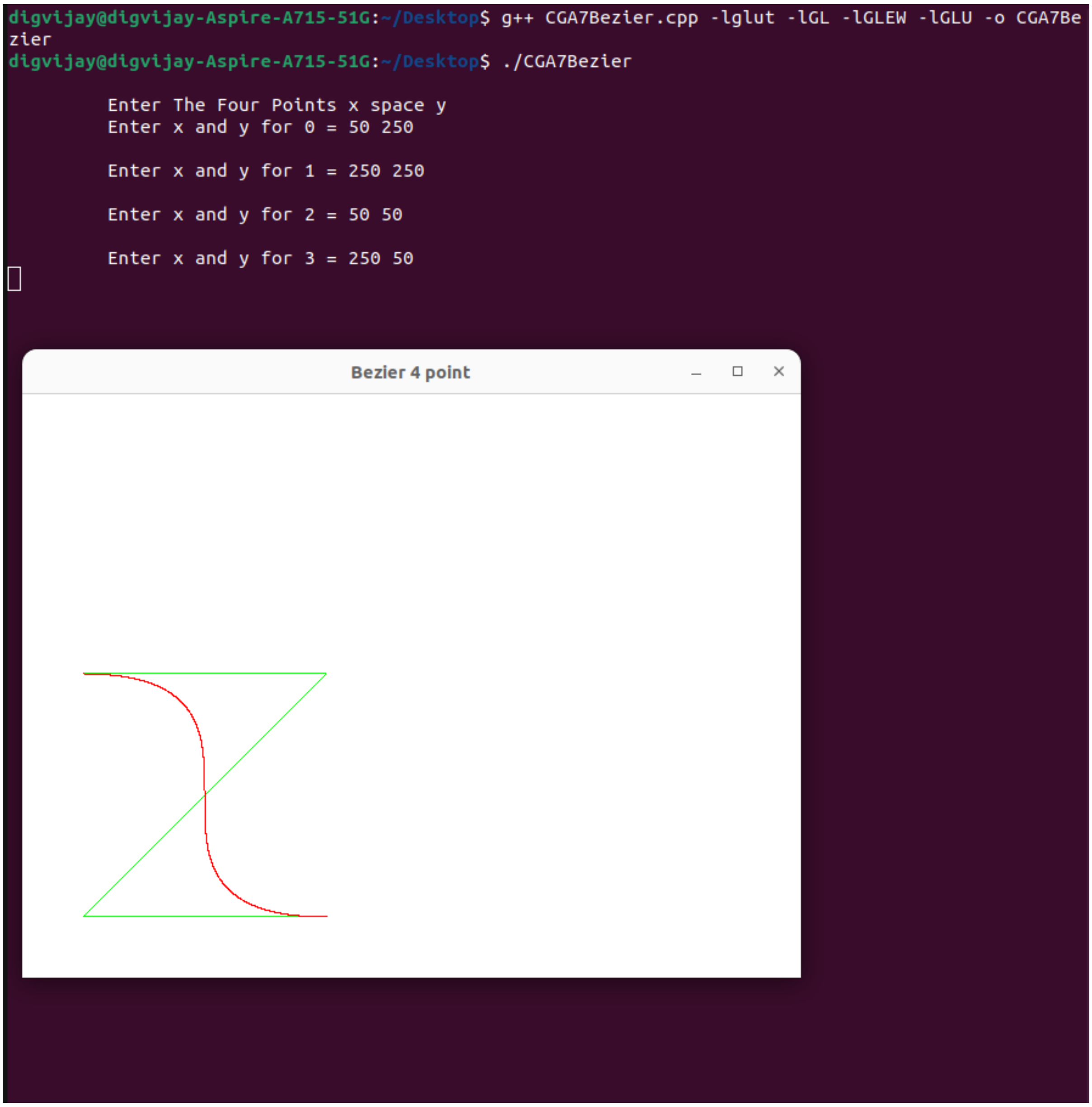
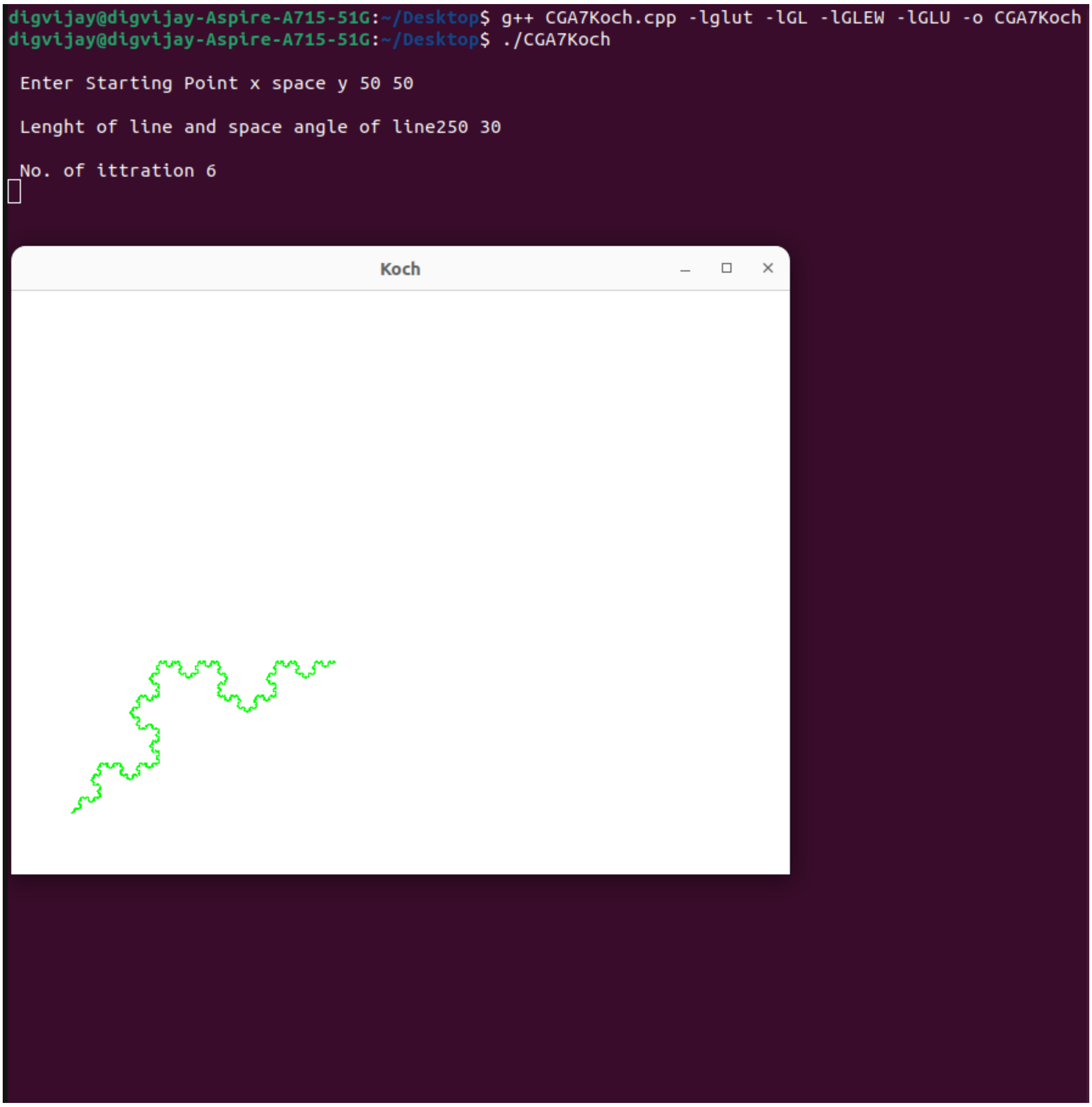
```
#include <iostream>
#include <math.h>
#include <time.h>
#include <GL/glut.h>
using namespace std;
int x[4],y[4];
void init(){
glClearColor(1.0,1.0,1.0,0.0);
glMatrixMode(GL_PROJECTION);
gluOrtho2D(0,640,0,480);
glClear(GL_COLOR_BUFFER_BIT);
}
void putpixel(double xt,double yt )
{
glColor3f(1,0,0);
glBegin(GL_POINTS);
glVertex2d(xt,yt);
glEnd();
glFlush();
}
void Algorithm(){
glColor3f(0,1,0);
glBegin(GL_LINES);
glVertex2i(x[0],y[0]);
glVertex2i(x[1],y[1]);
glVertex2i(x[1],y[1]);
glVertex2i(x[2],y[2]);
glVertex2i(x[2],y[2]);
glVertex2i(x[3],y[3]);
glEnd();
glFlush();
double t;
for (t = 0.0; t < 1.0; t += 0.0005){
double xt = pow(1-t, 3) * x[0] + 3 * t * pow(1-t, 2) * x[1] + 3 * pow(t, 2)
* (1-t) * x[2] + pow(t, 3) *
x[3];
double yt = pow(1-t, 3) * y[0] + 3 * t * pow(1-t, 2) * y[1] + 3 * pow(t, 2)
* (1-t) * y[2] + pow(t, 3) *
y[3];
putpixel(xt, yt);
}}
int main(int argc, char** argv){
cout<<"\n \t Enter The Four Points x space y ";
for(int i=0;i<4;i++){
cout<<"\n \t Enter x and y for "<<i<<" = ";
cin>>x[i]>>y[i];}
glutInit(&argc, argv);
glutInitDisplayMode(GLUT_SINGLE|GLUT_RGB);
glutInitWindowSize(640,480);
glutInitWindowPosition(200,200);
glutCreateWindow("Bezier 4 point");
init();
glutDisplayFunc(Algorithm);
glutMainLoop();
return 0;
}
```



```
digvijay@digvijay-Aspire-A715-51G:~/Desktop$ g++ CGA7Bezier.cpp -lglut -lGL -lGLEW -lGLU -o CGA7Be
zier
digvijay@digvijay-Aspire-A715-51G:~/Desktop$ ./CGA7Bezier

         Enter The Four Points x space y
         Enter x and y for 0 = 50 250

         Enter x and y for 1 = 250 250

         Enter x and y for 2 = 50 50

         Enter x and y for 3 = 250 50
```

```
#include <iostream>
#include <math.h>
#include <time.h>
#include <GL/glut.h>
using namespace std;
double x,y,len,angle;
int it;
void init(){
glClearColor(1.0,1.0,1.0,0.0);
glMatrixMode(GL_PROJECTION);
gluOrtho2D(0,640,0,480);
glClear(GL_COLOR_BUFFER_BIT);}
void line1(int x1, int y11, int x2,int y2){
glColor3f(0,1,0);
glBegin(GL_LINES);
glVertex2i(x1,y11);
glVertex2i(x2,y2);
glEnd();
glFlush();
}
void k_curve(double x, double y, double len, double angle, int it){
if(it>0){
len/=3;
k_curve(x,y,len,angle,(it-1));
x += (len * cosl(angle * (M_PI)/180));
y += (len * sinl(angle * (M_PI)/180));
k_curve(x,y, len, angle+60,(it-1));
x += (len * cosl((angle + 60) * (M_PI)/180));
y += (len * sinl((angle + 60) * (M_PI)/180));
k_curve(x,y, len, angle-60,(it-1));
x += (len * cosl((angle - 60) * (M_PI)/180));
y += (len * sinl((angle - 60) * (M_PI)/180));
k_curve(x,y,len,angle,(it-1));
}
else
{
line1(x,y,(int)(x + len * cosl(angle * (M_PI)/180) + 0.5),(int)(y + len *
sinl(angle * (M_PI)/180) +
0.5));
}
}
void Algorithm(){
k_curve(x,y,len,angle,it);
}
int main(int argc, char** argv){
cout<<"\n Enter Starting Point x space y ";
cin>>x>>y;
cout <<"\n Lenght of line and space angle of line";
cin>>len>>angle;
cout<<"\n No. of ittration ";
cin>>it;
glutInit(&argc, argv);
glutInitDisplayMode(GLUT_SINGLE|GLUT_RGB);
glutInitWindowSize(640,480);
glutInitWindowPosition(200,200);
glutCreateWindow("Koch");
init();
glutDisplayFunc(Algorithm);
glutMainLoop();
return 0;
}
```



```
digvijay@digvijay-Aspire-A715-51G:~/Desktop$ g++ CGA7Koch.cpp -lglut -lGL -lGLEW -lGLU -o CGA7Koch
digvijay@digvijay-Aspire-A715-51G:~/Desktop$ ./CGA7Koch

 Enter Starting Point x space y 50 50

 Lenght of line and space angle of line250 30

 No. of ittration 6
```