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CLASS: SE IT A

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# ASSIGNMENT NO: 7

CODE:

#include<iostream>

#include<stdlib.h> #include<GL/glut.h> using namespace std; #define SIN 0.86602540

int n; int x1=0,x2=550; int y1=200,y2=200;

void koch(int x1,int y1,int x2,int y2,int m)

{

int xx,yy,x[5],y[5],lx,ly; lx=(x2-x1)/3; ly=(y2-y1)/3; x[0]=x1; y[0]=y1; x[4]=x2; y[4]=y2; x[1]=x[0]+lx; y[1]=y[0]+ly; x[3]=x[0]+2\*lx; y[3]=y[0]+2\*ly; xx=x[3]-x[1]; yy=y[3]-y[1]; x[2]=xx\*(0.5)+yy\*(SIN);

y[2]=-xx\*(SIN)+yy\*(0.5); x[2]=x[2]+x[1]; y[2]=y[2]+y[1];

if(m>0) {

//// koch curve is called 4 times because line is divided in 4 parts ...iteration is passed in &#39;n&#39; ... koch(x[0],y[0],x[1],y[1],m-1); koch(x[1],y[1],x[2],y[2],m-1); koch(x[2],y[2],x[3],y[3],m-1); koch(x[3],y[3],x[4],y[4],m-1);

} else

{

//else it will draw lines glBegin(GL\_LINES); glVertex2d(x[0], y[0]); glVertex2d(x[1] , y[1] ); glEnd(); glBegin(GL\_LINES); glVertex2d(x[1], y[1]); glVertex2d(x[2] , y[2] ); glEnd(); glBegin(GL\_LINES); glVertex2d(x[2], y[2]); glVertex2d(x[3] , y[3] ); glEnd(); glBegin(GL\_LINES); glVertex2d(x[3], y[3]); glVertex2d(x[4] , y[4] ); glEnd(); } } void display(void)

{

glClear(GL\_COLOR\_BUFFER\_BIT); glColor3f(1.0,1.0,1.0); koch(x1,y1,x2,y2,n); glFlush(); } void myinit() { glClearColor(0.0,0.0,0.0,1.0); glColor3f(1.0,1.0,1.0); gluOrtho2D(0.0,650.0,650.0,0.0);

}

int main(int argc,char \*\*argv)

{

cout<<"\nEnter the level of curve generation ";

cin>>n;

glutInit(&argc,argv); glutInitDisplayMode(GLUT\_SINGLE|GLUT\_RGB); glutInitWindowSize(650,650); glutInitWindowPosition(0,0); glutCreateWindow("koch\_Curve"); glutDisplayFunc(display); myinit(); glutMainLoop(); return 0; }

OUTPUT:

