Aim:
Program to display a set of values {fij} as a rectangular mesh.

Algorithm :
1. Define two variables maxx and maxy for the sides of the rectangular mesh.
2. Define dx,dy and also define two arrays x and y.
3. Under init() , we call glLoadIdentity() to start over from the origin.
4. In the display function , you run for loops that update the arrays with (x[i],y[j]) positions.
5. Display the rectangular mesh by passing GL_LINE_LOOP to glBegin as a parameter.

Code: rectMesh.c

```
#include<stdio.h>
#include<stdlib.h>
#include<GL/glut.h>
#define maxx 20
#define maxy 25
#define dx 10
#define dy 15
GLfloat x[maxx]={0.0},y[maxy]={0.0};
GLfloat x0=50,y0=50;
GLint i,j;

void init()
{
        glClearColor(1.0,1.0,1.0,1.0);
        glColor3f(1.0,0.0,0.0);
        glPointSize(5.0);
        glMatrixMode(GL_PROJECTION);
        glLoadIdentity();
        gluOrtho2D(0.0,499.0,0.0,499.0);
        glutPostRedisplay();
}

void display(void)
{
        glClear(GL_COLOR_BUFFER_BIT);
        //glColor3f(1.0,0.0,0.0);
        for(i=0;i<maxx;i++)
                x[i]=x0+i*dx;
        for(j=0;j<maxy;j++)
                y[j]=y0+j*dy;
        // glColor3f(0.0,0.0,1.0);
        for(i=0;i<maxx-1;i++)
                for(j=0;j<maxy-1;j++)
                {
                        glColor3f(0.0,0.0,1.0);
                        glBegin(GL_LINE_LOOP);
                                glVertex2f(x[i],y[j]);
                                glVertex2f(x[i],y[j+1]);
```

```
                                        glVertex2f(x[i+1],y[j+1]);
                                        glVertex2f(x[i+1],y[j]);
                                glEnd();
                                glFlush();
                        }
                glFlush();
        }

        int main(int argc,char **argv)
        {
                glutInit(&argc,argv);
                glutInitDisplayMode(GLUT_SINGLE|GLUT_RGB);
                glutInitWindowSize(500,400);
                glutInitWindowPosition(0,0);
                glutCreateWindow("Rectangular Mesh");
                glutDisplayFunc(display);
                init();
                glutMainLoop();
        }
```

Output:
Commands for execution:-

* Open a terminal and Change directory to the file location in both the terminals.
* compile as gcc -lGLU -lGL -lglut rectMesh.c -o mesh
* If no errors, run as ./mesh

Screenshots:-