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| |  | | --- | | **Creating a Four-Star Design Using Polygon** |         **SUBMITTED BY**   |  |  |  | | --- | --- | --- | | Name | ID | Section | | Kabid Yeiad | 202-15-14440 | 57\_A |   **SUBMITTED TO**  **Deawan Rakin Ahamed Rema,**  **Lecturer**  **Dept. of CSE**  **Daffodil International University**   |  | | --- | |  |   Submitted on August 26, 2023 |

**Understanding the Graph:**

Central to the graph is the origin (0, 0), a pivotal reference point from which all coordinates are measured.

**X-Axis Range:** -10 to 10

**Y-Axis Range:** -10 to 10

**Graph Dimensions**: 20x20 Units

**Divisions:** Each unit contains three subdivisions, equating to 60 divisions along each axis.

**Plotted Stars**:

Within this graph, four stars emerge, each occupying a unique position and delineated by distinct coordinates:

1. Magenta Star Coordinates: (1, 4), (5, 5), (1, 6), (-1, 6), (-5, 5), (-1, 4), (0, 0)

2. Red Star Coordinates: (-4, 1), (-5, 5), (-6, 1), (-6, -1), (-5, -5), (-4, -1), (0, 0)

3. Blue Star Coordinates: (-1, -4), (-5, -5), (-1, -6), (1, -6), (5, -5), (1, -4), (0, 0)

4. Yellow Star Coordinates: (4, -1), (5, -5), (6, -1), (6, 1), (5, 5), (4, 1), (0, 0)

**Code:**

#include <GL/gl.h>

#include <GL/glut.h>

void display (void) {

glClear (GL\_COLOR\_BUFFER\_BIT);

// Draw the Magenta star

glColor3f (1.0, 0.0, 1.0);

glBegin (GL\_POLYGON);

glVertex2d (100, 400);

glVertex2d (500, 500);

glVertex2d (100, 600);

glVertex2d (0, 1000);

glVertex2d (-100, 600);

glVertex2d (-500, 500);

glVertex2d (-100, 400);

glVertex2d (0, 0);

glEnd();

// Draw the red star

glColor3f (1.0, 0.0, 0.0);

glBegin (GL\_POLYGON);

glVertex2d (-400, 100);

glVertex2d (-500, 500);

glVertex2d (-600, 100);

glVertex2d (-1000, 0);

glVertex2d (-600, -100);

glVertex2d (-500, -500);

glVertex2d (-400, -100);

glVertex2d (0, 0);

glEnd();

// Draw the blue star

glColor3f (0.0, 0.0, 1.0);

glBegin (GL\_POLYGON);

glVertex2d (-100, -400);

glVertex2d (-500, -500);

glVertex2d (-100, -600);

glVertex2d (0, -1000);

glVertex2d (100, -600);

glVertex2d (500, -500);

glVertex2d (100, -400);

glVertex2d (0, 0);

glEnd();

// Draw the yellow star

glColor3f (1.0, 1.0, 0.0);

glBegin (GL\_POLYGON);

glVertex2d (400, -100);

glVertex2d (500, -500);

glVertex2d (600, -100);

glVertex2d (1000, 0);

glVertex2d (600, 100);

glVertex2d (500, 500);

glVertex2d (400, 100);

glVertex2d (0, 0);

glEnd();

glFlush ();

}

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

glutInit (&argc, argv);

glutInitDisplayMode (GLUT\_SINGLE);

glutInitWindowSize (800, 800);

glutInitWindowPosition (100, 100);

glutCreateWindow ("Four Star Design");

glClearColor (0.0, 0.0, 0.0, 0.0);

glMatrixMode (GL\_PROJECTION);

glLoadIdentity ();

gluOrtho2D (-1200, 1200, -1200, 1200);

glutDisplayFunc (display);

glutMainLoop ();

return 0;

}

**Output:**

