**Lab Taks-2**

Submission Guidelines-

* Rename the file to your id only. If your id is 18-XXXXX-1, then the file name must be 18-XXXXX-1.docx.
* Must submit within time that will be discussed in class VUES to the section named Lab Tak-2
* Must include resources for all the section in the table

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| **Question- 1**  Draw a Rainbow Flag   |  | | --- | |  | |  | |  | |  | |  | |  | |  | |
| **Graph Plot (Picture)-** |
| **Code-**  **#include <windows.h> // for MS Windows**  **#include <GL/glut.h> // GLUT, include glu.h and gl.h**  **void code()**  **{**  **glPointSize(5.0);**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 0.0f, 0.0f); // Red**  **glVertex2f(-3.0f, -3.0f);**  **glVertex2f(3.0f, -3.0f);**  **glVertex2f(3.0f, -2.0f);**  **glVertex2f(-3.0f, -2.0f);**  **glEnd();**  **glFlush();**  **glPointSize(5.0);**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 0.0f); // Yellow**  **glVertex2f(-3.0f, -2.0f);**  **glVertex2f(3.0f, -2.0f);**  **glVertex2f(3.0f, -1.0f);**  **glVertex2f(-3.0f, -1.0f);**  **glEnd();**  **glFlush();**  **glPointSize(5.0);**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 0.5f, 0.0f); //Orange**  **glVertex2f(-3.0f, -1.0f);**  **glVertex2f(3.0f, -1.0f);**  **glVertex2f(3.0f, 0.0f);**  **glVertex2f(-3.0f, 0.0f);**  **glEnd();**  **glFlush();**  **glPointSize(5.0);**  **glBegin(GL\_POLYGON);**  **glColor3f(0.0f, 0.70f, 0.0f); // Green**  **glVertex2f(-3.0f, 0.0f);**  **glVertex2f(3.0f, 0.0f);**  **glVertex2f(3.0f, 1.0f);**  **glVertex2f(-3.0f, 1.0f);**  **glEnd();**  **glFlush();**  **glPointSize(5.0);**  **glBegin(GL\_POLYGON);**  **glColor3ub(100, 149, 237);// Blue**  **glVertex2f(-3.0f, 1.0f);**  **glVertex2f(3.0f, 1.0f);**  **glVertex2f(3.0f, 2.0f);**  **glVertex2f(-3.0f, 2.0f);**  **glEnd();**  **glFlush();**  **glPointSize(5.0);**  **glBegin(GL\_POLYGON);**  **glColor3ub(70, 130, 180);**  **glVertex2f(-3.0f, 2.0f);**  **glVertex2f(3.0f, 2.0f);**  **glVertex2f(3.0f, 3.0f);**  **glVertex2f(-3.0f,3.0f);**  **glEnd();**  **glFlush();**  **glPointSize(5.0);**  **glBegin(GL\_POLYGON);**  **glColor3f(0.40f, 0.0f, 0.50f);**  **glVertex2f(-3.0f, 3.0f);**  **glVertex2f(3.0f, 3.0f);**  **glVertex2f(3.0f, 4.0f);**  **glVertex2f(-3.0f,4.0f);**  **glEnd();**  **glFlush();**  **}**  **void display() {**  **glClearColor(1.0f, 1.0f, 1.0f, 1.0f); // Set background color to black and opaque**  **glClear(GL\_COLOR\_BUFFER\_BIT); // Clear the color buffer (background)**  **code();**  **glEnd();**  **glFlush(); // Render now**  **}**  **int main(int argc, char\*\* argv) {**  **glutInit(&argc, argv);**  **glutInitWindowSize(500,500);**  **glutInitWindowPosition(10,10);**  **glutCreateWindow("LAB TASK"); // Create a window with the given title**  **glutDisplayFunc(display); // Register display callback handler for window re-paint**  **gluOrtho2D(-8,8,-8,9);**  **glutMainLoop(); // Enter the event-processing loop**  **return 0;**  **}** |
| **Output Screenshot (Full Screen)-** |

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| **Question- 2**  Draw 4X4 Chess Board |
| **Graph Plot (Picture)-** |
| **Code-**  **#include <windows.h> // for MS Windows**  **#include <GL/glut.h> // GLUT, include glu.h and gl.h**  **void code()**  **{**  **glPointSize(5.0);**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);**  **glBegin(GL\_QUADS);**  **// White 1**  **glVertex2f(-3.0f, -1.0f);**  **glVertex2f(-1.0f, -1.0f);**  **glVertex2f(-1.0f, 1.0f);**  **glVertex2f(-3.0f, 1.0f);**  **// White 2**  **glVertex2f(1.0f, -1.0f);**  **glVertex2f(3.0f, -1.0f);**  **glVertex2f(3.0f, 1.0f);**  **glVertex2f(1.0f, 1.0f);**  **// White 3**  **glVertex2f(3.0f, 1.0f);**  **glVertex2f(5.0f, 1.0f);**  **glVertex2f(5.0f, 3.0f);**  **glVertex2f(3.0f, 3.0f);**  **// White 4**  **glVertex2f(-1.0f, 1.0f);**  **glVertex2f(1.0f, 1.0f);**  **glVertex2f(1.0f, 3.0f);**  **glVertex2f(-1.0f, 3.0f);**  **// White box 5**  **glVertex2f(-3.0f, 3.0f);**  **glVertex2f(-1.0f, 3.0f);**  **glVertex2f(-1.0f, 5.0f);**  **glVertex2f(-3.0f, 5.0f);**  **// White 6**  **glVertex2f(1.0f, 3.0f);**  **glVertex2f(3.0f, 3.0f);**  **glVertex2f(3.0f, 5.0f);**  **glVertex2f(1.0f, 5.0f);**  **// White 7**  **glVertex2f(-1.0f, 5.0f);**  **glVertex2f(1.0f, 5.0f);**  **glVertex2f(1.0f, 7.0f);**  **glVertex2f(-1.0f, 7.0f);**  **// White 8**  **glVertex2f(3.0f, 5.0f);**  **glVertex2f(5.0f, 5.0f);**  **glVertex2f(5.0f, 7.0f);**  **glVertex2f(3.0f, 7.0f);**  **glEnd();**  **glColor3ub(0, 0, 0);**  **glBegin(GL\_QUADS);**  **//black box 1**  **glVertex2f(-1.0f, -1.0f);**  **glVertex2f(1.0f, -1.0f);**  **glVertex2f(1.0f, 1.0f);**  **glVertex2f(-1.0f, 1.0f);**  **// bb 2**  **glVertex2f(3.0f, -1.0f);**  **glVertex2f(5.0f, -1.0f);**  **glVertex2f(5.0f, 1.0f);**  **glVertex2f(3.0f, 1.0f);**  **// bb 3**  **glVertex2f(1.0f, 3.0f);**  **glVertex2f(1.0f, 1.0f);**  **glVertex2f(3.0f, 1.0f);**  **glVertex2f(3.0f,3.0f);**  **// bb 4**  **glVertex2f(-3.0f, 3.0f);**  **glVertex2f(-3.0f, 1.0f);**  **glVertex2f(-1.0f, 1.0f);**  **glVertex2f(-1.0f, 3.0f);**  **// bb 5**  **glVertex2f(-1.0f, 3.0f);**  **glVertex2f(1.0f, 3.0f);**  **glVertex2f(1.0f, 5.0f);**  **glVertex2f(-1.0f, 5.0f);**  **// bb 6**  **glVertex2f(3.0f, 5.0f);**  **glVertex2f(5.0f, 5.0f);**  **glVertex2f(5.0f, 3.0f);**  **glVertex2f(3.0f, 3.0f);**  **// bb 7**  **glVertex2f(-3.0f, 7.0f);**  **glVertex2f(-3.0f, 5.0f);**  **glVertex2f(-1.0f, 5.0f);**  **glVertex2f(-1.0f, 7.0f);**  **// bb 8**  **glVertex2f(1.0f, 7.0f);**  **glVertex2f(1.0f, 5.0f);**  **glVertex2f(3.0f, 5.0f);**  **glVertex2f(3.0f, 7.0f);**  **}**  **void display()**  **{**  **glClearColor(0.0f, 0.0f, 1.0f, 0.0f);**  **glClear(GL\_COLOR\_BUFFER\_BIT);**  **code();**  **glEnd();**  **glFlush(); // Render now**  **}**  **int main(int argc, char\*\* argv)**  **{**  **glutInit(&argc, argv);**  **glutInitWindowSize(500,500);**  **glutInitWindowPosition(10,10);**  **glutCreateWindow("LAB TASK");**  **glutDisplayFunc(display);**  **gluOrtho2D(-8,8,-8,9);**  **glutMainLoop();**  **return 0;**  **}** |
| **Output Screenshot (Full Screen)-** |

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| **Question- 3**  Create the batman logo given below- |
| **Graph Plot (Picture)-** |
| **Code-**  **#include <windows.h>**  **#include <GL/glut.h>**  **void Arrow()**  **{**  **glLineWidth(5.5);**  **glPointSize(5.0);**  **glBegin(GL\_POLYGON);**  **glColor3ub(0,0,0);**  **glVertex2f(0.0f,-3.0f);**  **glVertex2f(-0.85f,-1.82f);**  **glVertex2f(-1.93f,-1.24f);**  **glVertex2f(-3.0f,-1.0f);**  **glVertex2f(-4.11f,-0.86f);**  **glVertex2f(-5.31f,-0.92f);**  **glVertex2f(-5.29f,0.0f);**  **glVertex2f(-5.85f,1.04f);**  **glVertex2f(-7.0f,2.0f);**  **glVertex2f(-2.19f, 2.0f);**  **glVertex2f(-2.0f, 1.0f);**  **glVertex2f(-1.03f, 0.84f);**  **glVertex2f(-0.6f, 1.2f);**  **glVertex2f(-0.47f, 1.78f);**  **glVertex2f(-0.33f, 1.32f);**  **glVertex2f(0.23f, 1.32f);**  **glVertex2f(0.35f, 1.84f);**  **glVertex2f(0.5f, 1.2f);**  **glVertex2f(1.05f, 0.84f);**  **glVertex2f(1.95f, 1.14f);**  **glVertex2f(2.14f, 2.0f);**  **glVertex2f(7.0f, 2.0f);**  **glVertex2f(5.69f, 1.0f);**  **glVertex2f(5.13f,0.04f);**  **glVertex2f(5.29f,-1.04f);**  **glVertex2f(3.01f,-0.86f);**  **glVertex2f(2.03f,-1.24f);**  **glVertex2f(0.73f,-1.82f);**  **}**  **void display()**  **{**  **glClearColor(1.0f, 1.0f, 1.0f, 1.0f);**  **glClear(GL\_COLOR\_BUFFER\_BIT);**  **Arrow();**  **glEnd();**  **glFlush(); // Render now**  **}**  **/\* Main function: GLUT runs as a console application starting at main() \*/**  **int main(int argc, char\*\* argv)**  **{**  **glutInit(&argc, argv);**  **glutInitWindowSize(700,700);**  **glutInitWindowPosition(10,10);**  **glutCreateWindow("LAB TASK");**  **glutDisplayFunc(display); // Register display callback handler for window re-paint**  **gluOrtho2D(-10,10,-10,10);**  **glutMainLoop(); // Enter the event-processing loop**  **return 0;**  **}** |
| **Output Screenshot (Full Screen)-** |