**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>**  **#ifdef \_\_APPLE\_\_**  **#include <GLUT/glut.h>**  **#else**  **#include <GL/glut.h>**  **#endif**  **#include <stdlib.h>**  **static int slices = 16;**  **static int stacks = 16;**  **void drawPolygons()**  **{**  **// Polygon 1 (Violet)**  **glBegin(GL\_POLYGON);**  **glColor3ub(138, 51, 255);**  **glVertex2f(3.2581072613226f, 2.9941381060569f); // A**  **glVertex2f(6.7999337671648f, 2.9941381060569f); // I**  **glVertex2f(6.7999337671648f, 2.7028190428058f); // J**  **glVertex2f(3.2427746790462f, 2.6874864605295f); // B**  **glEnd();**  **// Polygon 2 (Blue)**  **glBegin(GL\_POLYGON);**  **glColor3ub(51, 100, 255);**  **glVertex2f(3.2427746790462f, 2.6874864605295f); // B**  **glVertex2f(6.7999337671648f, 2.7028190428058f); // J**  **glVertex2f(6.795989317176f, 2.4114999795547f); // K**  **glVertex2f(3.2581072613226f, 2.4114999795547f); // C**  **glEnd();**  **// Polygon 3 (Light Blue)**  **glBegin(GL\_POLYGON);**  **glColor3ub(51, 212, 255);**  **glVertex2f(3.2581072613226f, 2.4114999795547f); // C**  **glVertex2f(6.795989317176f, 2.4114999795547f); // K**  **glVertex2f(6.79152634944112f, 2.0f); // L**  **glVertex2f(3.2427746790462f, 2.0895175175709f); // D**  **glEnd();**  **// Polygon 4 (Green)**  **glBegin(GL\_POLYGON);**  **glColor3ub(51, 255, 100);**  **glVertex2f(3.2427746790462f, 2.0895175175709f); // D**  **glVertex2f(6.792634944112f, 2.0895175175709f); // L**  **glVertex2f(6.79152634944112f, 1.7521989416707f); // M**  **glVertex2f(3.2581072613226f, 1.7828641062234f); // E**  **glEnd();**  **// Polygon 5 (Orange)**  **glBegin(GL\_POLYGON);**  **glColor3ub(255, 190, 51);**  **glVertex2f(3.2427746790462f, 1.7828641062234f); // E**  **glVertex2f(6.79152634944112, 1.7521989416707f); // M**  **glVertex2f(6.79152634944112, 1.446214600696f); // N**  **glVertex2f(3.227442096798f, 1.4608798784196f); // F**  **glEnd();**  **// Polygon 6 (Yellow)**  **glBegin(GL\_POLYGON);**  **glColor3ub(249, 255, 51);**  **glVertex2f(3.2427746790462f, 1.4608798784196f); // F**  **glVertex2f(6.79152634944112f, 1.446214600696f); // N**  **glVertex2f(6.7999337671648f, 1.134893794137f); // O**  **glVertex2f(3.2427746790462f, 1.138956506157f); // G**  **glEnd();**  **// Polygon 7 (Red)**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0, 0.0, 0.0);**  **glVertex2f(3.2427746790462f, 1.138956506157f); // G**  **glVertex2f(6.7999337671648f, 1.134893794137f); // O**  **glVertex2f(6.7999337671648f, 0.8322440050883f); // P**  **glVertex2f(3.2427746790462f, 0.8475675837647f); // H**  **glEnd();**  **}**  **// Display function**  **void display()**  **{**  **glClear(GL\_COLOR\_BUFFER\_BIT);**  **drawPolygons();**  **glFlush();**  **}**  **int main(int argc, char \*argv[])**  **{**  **glutInit(&argc, argv);**  **glutInitWindowPosition(5, 200);**  **glutInitWindowSize(320, 320);**  **glutCreateWindow("Shraboni Biswas Naboni-26");**  **glClearColor(1.0, 1.0, 1.0, 1.0);**  **glutDisplayFunc(display);**  **gluOrtho2D(-12, 12, -12, 12);**  **glutMainLoop();**  **return 0;**  **}**  **/////////////////chess** |
| **Output Screenshot (Full Screen)-** |

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| **Question- 2**  Draw 4X4 Chess Board |
| **Graph Plot (Picture)-** |
| **Code-**  **#include <windows.h>**  **#include <GL/glut.h>**  **void drawBoard1(){**  **glBegin(GL\_POLYGON);**  **glColor3f(0.0, 0.0, 0.0);**  **glVertex2f(0.0, 0.0);**  **glVertex2f(1.0, 0.0);**  **glVertex2f(1.0, 1.0);**  **glVertex2f(0.0, 1.0);**  **glEnd();**  **}**  **void drawBoard2(){**  **glBegin(GL\_POLYGON);**  **glColor3ub(247, 249, 249);**  **glVertex2f(1.0, 0.0);**  **glVertex2f(2.0, 0.0);**  **glVertex2f(2.0, 1.0);**  **glVertex2f(1.0, 1.0);**  **glEnd();**  **}**  **void drawBoard3(){**  **glBegin(GL\_POLYGON);**  **glColor3f(0.0, 0.0, 0.0);**  **glVertex2f(1.0, 1.0);**  **glVertex2f(2.0, 1.0);**  **glVertex2f(2.0, 2.0);**  **glVertex2f(1.0, 2.0);**  **glEnd();**  **}**  **void drawBoard4(){**  **glBegin(GL\_POLYGON);**  **glColor3ub(247, 249, 249);**  **glVertex2f(0.0, 1.0);**  **glVertex2f(1.0, 1.0);**  **glVertex2f(1.0, 2.0);**  **glVertex2f(0.0, 2.0);**  **glEnd();**  **}**  **void drawBoard5(){**  **glBegin(GL\_POLYGON);**  **glColor3ub(247, 249, 249);**  **glVertex2f(0.0, 0.0);**  **glVertex2f(-1.0, 0.0);**  **glVertex2f(-1.0, 1.0);**  **glVertex2f(0.0, 1.0);**  **glEnd();**  **}**  **void drawBoard6(){**  **glBegin(GL\_POLYGON);**  **glColor3f(0.0, 0.0, 0.0);**  **glVertex2f(-1.0, 1.0);**  **glVertex2f(0.0, 1.0);**  **glVertex2f(0.0, 2.0);**  **glVertex2f(-1.0, 2.0);**  **glEnd();**  **}**  **void drawBoard7(){**  **glBegin(GL\_POLYGON);**  **glColor3f(0.0, 0.0, 0.0);**  **glVertex2f(-1.0, 0.0);**  **glVertex2f(-2.0, 0.0);**  **glVertex2f(-2.0, 1.0);**  **glVertex2f(-1.0, 1.0);**  **glEnd();**  **}**  **void drawBoard8(){**  **glBegin(GL\_POLYGON);**  **glColor3ub(247, 249, 249);**  **glVertex2f(-1.0, 1.0);**  **glVertex2f(-2.0, 1.0);**  **glVertex2f(-2.0, 2.0);**  **glVertex2f(-1.0, 2.0);**  **glEnd();**  **}**  **void drawBoard9(){**  **glBegin(GL\_POLYGON);**  **glColor3ub(247, 249, 249);**  **glVertex2f(0.0, 0.0);**  **glVertex2f(0.0, -1.0);**  **glVertex2f(1.0, -1.0);**  **glVertex2f(1.0, 0.0);**  **glEnd();**  **}**  **void drawBoard10(){**  **glBegin(GL\_POLYGON);**  **glColor3f(0.0, 0.0, 0.0);**  **glVertex2f(1.0, 0.0);**  **glVertex2f(1.0, -1.0);**  **glVertex2f(2.0, -1.0);**  **glVertex2f(2.0, 0.0);**  **glEnd();**  **}**  **void drawBoard11(){**  **glBegin(GL\_POLYGON);**  **glColor3f(0.0, 0.0, 0.0);**  **glVertex2f(0.0, -1.0);**  **glVertex2f(0.0, -2.0);**  **glVertex2f(1.0, -2.0);**  **glVertex2f(1.0, -1.0);**  **glEnd();**  **}**  **void drawBoard12(){**  **glBegin(GL\_POLYGON);**  **glColor3ub(247, 249, 249);**  **glVertex2f(1.0, -1.0);**  **glVertex2f(1.0, -2.0);**  **glVertex2f(2.0, -2.0);**  **glVertex2f(2.0, -1.0);**  **glEnd();**  **}**  **void drawBoard13(){**  **glBegin(GL\_POLYGON);**  **glColor3f(0.0, 0.0, 0.0);**  **glVertex2f(0.0, 0.0);**  **glVertex2f(-1.0, 0.0);**  **glVertex2f(-1.0, -1.0);**  **glVertex2f(0.0, -1.0);**  **glEnd();**  **}**  **void drawBoard14(){**  **glBegin(GL\_POLYGON);**  **glColor3ub(247, 249, 249);**  **glVertex2f(-1.0, 0.0);**  **glVertex2f(-1.0, -1.0);**  **glVertex2f(-2.0, -1.0);**  **glVertex2f(-2.0, 0.0);**  **glEnd();**  **}**  **void drawBoard15(){**  **glBegin(GL\_POLYGON);**  **glColor3ub(247, 249, 249);**  **glVertex2f(0.0, -1.0);**  **glVertex2f(0.0, -2.0);**  **glVertex2f(-1.0, -2.0);**  **glVertex2f(-1.0, -1.0);**  **glEnd();**  **}**  **void drawBoard16(){**  **glBegin(GL\_POLYGON);**  **glColor3f(0.0, 0.0, 0.0);**  **glVertex2f(-1.0, -1.0);**  **glVertex2f(-1.0, -2.0);**  **glVertex2f(-2.0, -2.0);**  **glVertex2f(-2.0, -1.0);**  **glEnd();**  **}**  **void display() {**  **glClear(GL\_COLOR\_BUFFER\_BIT);**  **drawBoard1();**  **drawBoard2();**  **drawBoard3();**  **drawBoard4();**  **drawBoard5();**  **drawBoard6();**  **drawBoard7();**  **drawBoard8();**  **drawBoard9();**  **drawBoard10();**  **drawBoard11();**  **drawBoard12();**  **drawBoard13();**  **drawBoard14();**  **drawBoard15();**  **drawBoard16();**  **glFlush();**  **}**  **int main(int argc, char\*\* argv) {**  **glutInit(&argc, argv);**  **glutInitWindowSize(600, 600); // Set window size to 600x600 pixels**  **glutCreateWindow("SHraboiBisaws NAboni -26"); // Set window title**  **glClearColor(1.0, 1.0, 1.0, 1.0); // Set background color to white**  **gluOrtho2D(-4.0, 4.0, -4.0, 4.0); // Set the orthographic viewing area**  **glutDisplayFunc(display); // Register the display callback function**  **glutMainLoop(); // Enter the GLUT event processing loop**  **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>**  **#include <math.h>**  **void halfbatman() {**  **glVertex2f(0.0, 0.45); // A**  **glVertex2f(-0.0131845, 0.4483675591253); // B**  **glVertex2f(-0.0226809267085, 0.4499022262083); // C**  **glVertex2f(-0.02, 0.5); // D**  **glVertex2f(-0.0306673193441, 0.4249447492223); // E**  **glVertex2f(-0.1121035255537, 0.4528133563491); // F**  **glVertex2f(-0.1415569321618, 0.4783766903864); // G**  **glVertex2f(-0.3316147634821, 0.4783766903864); // H**  **glVertex2f(-0.2921583131203, 0.4600377768379); // I**  **glVertex2f(-0.266594979083, 0.424471399047); // J**  **glVertex2f(-0.2510346887995, 0.3766790788904); // K**  **glVertex2f(-0.2560362106763, 0.3322211066517); // L**  **glVertex2f(-0.2721522256129, 0.3077692219205); // M**  **glVertex2f(-0.1837920057885, 0.3094363958794); // N**  **glVertex2f(-0.1259966418782, 0.2972104535138); // O**  **glVertex2f(-0.066534104009, 0.2683127715587); // P**  **glVertex2f(0.0, 0.2); // Q**  **glVertex2f(0.0595374574106, 0.2683215798797); // R**  **glVertex2f(0.1321327202517, 0.2991195701759); // S**  **glVertex2f(0.1904289161695, 0.3134186370991); // T**  **glVertex2f(0.2963213661956, 0.3134395600927); // U**  **glVertex2f(0.2586244661111, 0.338716986271); // V**  **glVertex2f(0.2487251120874, 0.3893136846148); // W**  **glVertex2f(0.2641241072355, 0.4311109571597); // X**  **glVertex2f(0.2971219539814, 0.4575092345564); // Y**  **glVertex2f(0.3479080288984, 0.4731918058821); // Z**  **glVertex2f(0.1343325767014, 0.4696084450299); // AA**  **glVertex2f(0.1101341557544, 0.4310095858); // BB**  **glVertex2f(0.0573376009608, 0.4289111007099); // CC**  **glVertex2f(0.0317263731209, 0.4264421978414); // DD**  **glVertex2f(0.02, 0.5); // EE**  **glVertex2f(0.0232408309457, 0.4494030766686); // FF**  **}**  **void display() {**  **glClear(GL\_COLOR\_BUFFER\_BIT);**  **glColor3f(0.0, 0.0, 0.0);**  **glBegin(GL\_POLYGON);**  **halfbatman();**  **glEnd();**  **glFlush();**  **}**  **void init() {**  **glClearColor(1.0, 1.0, 1.0, 1.0);**  **glMatrixMode(GL\_PROJECTION);**  **gluOrtho2D(-1, 1, -1, 1); // Adjusted the projection for better visibility of the shape**  **}**  **int main(int argc, char\*\* argv) {**  **glutInit(&argc, argv);**  **glutInitDisplayMode(GLUT\_SINGLE | GLUT\_RGB);**  **glutInitWindowSize(500, 500);**  **glutInitWindowPosition(100, 100);**  **glutCreateWindow("Shraboni Biswas NAboni -26");**  **init();**  **glutDisplayFunc(display);**  **glutMainLoop();**  **return 0;**  **}** |
| **Output Screenshot (Full Screen)-** |