**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 \_flagPanel() {  glColor3ub(255, 255, 255);  glBegin(GL\_LINES);  glVertex2f(-5.0, -3.0);glVertex2f(5.0, -3.0);  glVertex2f(5.0, -3.0);glVertex2f(5.0, 4.0);  glVertex2f(5.0, 4.0);glVertex2f(-5.0, 4.0);  glVertex2f(-5.0, 4.0);glVertex2f(-5.0, -3.0);  glEnd();  }  void \_shades() {  //first  glColor3ub(148,0,211);  glBegin(GL\_POLYGON);  glVertex2f(-5.0, 3.0);glVertex2f(5.0, 3.0);  glVertex2f(5.0, 3.0);glVertex2f(5.0, 4.0);  glVertex2f(5.0, 4.0);glVertex2f(-5.0, 4.0);  glVertex2f(-5.0, 4.0);glVertex2f(-5.0, 3.0);  glEnd();  //second  glColor3ub(75, 0, 130);  glBegin(GL\_POLYGON);  glVertex2f(-5.0, 2.0);glVertex2f(5.0, 2.0);  glVertex2f(5.0, 2.0);glVertex2f(5.0, 3.0);  glVertex2f(5.0, 3.0);glVertex2f(-5.0, 3.0);  glVertex2f(-5.0, 3.0);glVertex2f(-5.0, 2.0);  glEnd();  //third  glColor3ub(0,0, 255);  glBegin(GL\_POLYGON);  glVertex2f(-5.0, 1.0);glVertex2f(5.0, 1.0);  glVertex2f(5.0, 1.0);glVertex2f(5.0, 2.0);  glVertex2f(5.0, 2.0);glVertex2f(-5.0, 2.0);  glVertex2f(-5.0, 2.0);glVertex2f(-5.0, 1.0);  glEnd();  //fourth  glColor3ub(0, 255, 0);  glBegin(GL\_POLYGON);  glVertex2f(-5.0, 0.0);glVertex2f(5.0, 0.0);  glVertex2f(5.0, 0.0);glVertex2f(5.0, 1.0);  glVertex2f(5.0, 1.0);glVertex2f(-5.0, 1.0);  glVertex2f(-5.0, 1.0);glVertex2f(-5.0, 0.0);  glEnd();  //fifth  glColor3ub(255, 127, 0);  glBegin(GL\_POLYGON);  glVertex2f(-5.0, -1.0);glVertex2f(5.0, -1.0);  glVertex2f(5.0, -1.0);glVertex2f(5.0, 0.0);  glVertex2f(5.0, 0.0);glVertex2f(-5.0, 0.0);  glVertex2f(-5.0, 0.0);glVertex2f(-5.0, -1.0);  glEnd();  //sixth  glColor3ub(255, 255, 0);  glBegin(GL\_POLYGON);  glVertex2f(-5.0, -2.0);glVertex2f(5.0, -2.0);  glVertex2f(5.0, -2.0);glVertex2f(5.0, -1.0);  glVertex2f(5.0, -1.0);glVertex2f(-5.0, -1.0);  glVertex2f(-5.0, -1.0);glVertex2f(-5.0, -2.0);  glEnd();  //seventh  glColor3ub(255, 0, 0);  glBegin(GL\_POLYGON);  glVertex2f(-5.0, -3.0);glVertex2f(5.0, -3.0);  glVertex2f(5.0, -3.0);glVertex2f(5.0, -2.0);  glVertex2f(5.0, -2.0);glVertex2f(-5.0, -2.0);  glVertex2f(-5.0, -2.0);glVertex2f(-5.0, -3.0);  glEnd();  }  void display() {  glClearColor(1.0f, 1.0f, 1.0f, 1.0f);  glClear(GL\_COLOR\_BUFFER\_BIT);  \_flagPanel();  \_shades();  glFlush();  }  int main(int argc, char\*\* argv) {  glutInit(&argc, argv);  glutInitWindowSize(600, 600);  glutInitWindowPosition((glutGet(GLUT\_SCREEN\_WIDTH)-600)/2,(glutGet(GLUT\_SCREEN\_HEIGHT)-600)/2);;  glutCreateWindow("Lab Task - 2");  //this line must be below of glutCreateWindow();  gluOrtho2D(-10, 10, -10, 10);  glutDisplayFunc(display);  glutMainLoop();  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 \_chessPanel() {  glColor3ub(0, 0, 0);  glBegin(GL\_LINES);  glVertex2f(-2.0, -2.0);glVertex2f(2.0, -2.0);  glVertex2f(2.0, -2.0);glVertex2f(2.0, 2.0);  glVertex2f(2.0, 2.0);glVertex2f(-2.0, 2.0);  glVertex2f(-2.0, 2.0);glVertex2f(-2.0, -2.0);  glEnd();  }  void \_blackShades() {  //col 1 black  glColor3ub(0,0,0);  glBegin(GL\_POLYGON);  glVertex2f(-2.0, 1.0);glVertex2f(-1.0, 1.0);  glVertex2f(-1.0, 1.0);glVertex2f(-1.0, 2.0);  glVertex2f(-1.0, 2.0);glVertex2f(-2.0, 2.0);  glVertex2f(-2.0, 2.0);glVertex2f(-2.0, -1.0);  glEnd();  glColor3ub(0,0,0);  glBegin(GL\_POLYGON);  glVertex2f(-2.0, -1.0);glVertex2f(-1.0, -1.0);  glVertex2f(-1.0, -1.0);glVertex2f(-1.0, 0.0);  glVertex2f(-1.0, 0.0);glVertex2f(-2.0, 0.0);  glVertex2f(-2.0, 0.0);glVertex2f(-2.0, -1.0);  glEnd();  //col 3 black  glColor3ub(0,0,0);  glBegin(GL\_POLYGON);  glVertex2f(0,2);glVertex2f(1,2);  glVertex2f(1,2);glVertex2f(1,1);  glVertex2f(1,1);glVertex2f(0,1);  glVertex2f(0,1);glVertex2f(0,2);  glEnd();  glColor3ub(0,0,0);  glBegin(GL\_POLYGON);  glVertex2f(0,0);glVertex2f(1,0);  glVertex2f(1,0);glVertex2f(1,-1);  glVertex2f(1,-1);glVertex2f(0,-1);  glVertex2f(0,-1);glVertex2f(0,0);  glEnd();  //col 2 black  glColor3ub(0,0,0);  glBegin(GL\_POLYGON);  glVertex2f(-1,1);glVertex2f(0,1);  glVertex2f(0,1);glVertex2f(0,0);  glVertex2f(0,0);glVertex2f(-1,0);  glVertex2f(-1,0);glVertex2f(-1,1);  glEnd();  glColor3ub(0,0,0);  glBegin(GL\_POLYGON);  glVertex2f(-1,-1);glVertex2f(0,-1);  glVertex2f(0,-1);glVertex2f(0,-2);  glVertex2f(0,-2);glVertex2f(-1,-2);  glVertex2f(-1,-2);glVertex2f(-1,-1);  glEnd();  //col 4 black  glColor3ub(0,0,0);  glBegin(GL\_POLYGON);  glVertex2f(1,1);glVertex2f(2,1);  glVertex2f(2,1);glVertex2f(2,0);  glVertex2f(2,0);glVertex2f(1,0);  glVertex2f(1,0);glVertex2f(1,1);  glEnd();  glColor3ub(0,0,0);  glBegin(GL\_POLYGON);  glVertex2f(1,-1);glVertex2f(2,-1);  glVertex2f(2,-1);glVertex2f(2,-2);  glVertex2f(2,-2);glVertex2f(1,-2);  glVertex2f(1,-2);glVertex2f(1,-1);  glEnd();  }  void display() {  glClearColor(1.0f, 1.0f, 1.0f, 1.0f);  glClear(GL\_COLOR\_BUFFER\_BIT);  \_chessPanel();  \_blackShades();  glFlush();  }  int main(int argc, char\*\* argv) {  glutInit(&argc, argv);  glutInitWindowSize(600, 600);  glutInitWindowPosition((glutGet(GLUT\_SCREEN\_WIDTH)-600)/2,(glutGet(GLUT\_SCREEN\_HEIGHT)-600)/2);;  glutCreateWindow("Lab Task - 2");  //this line must be below of glutCreateWindow();  gluOrtho2D(-10, 10, -10, 10);  glutDisplayFunc(display);  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> // for MS Windows  #include <GL/glut.h> // GLUT, include glu.h and gl.h  void batman()  { glColor3f(0,0,0);  glBegin(GL\_POLYGON);  glVertex2f(-0.65,2);  glVertex2f(-1.4,2.1);  glVertex2f(-1.9,2.2);  glVertex2f(-2.5,3);  glColor3f(0,0,0);  glBegin(GL\_POLYGON);  glVertex2f(-2.5,3);  glVertex2f(-7,3);  glVertex2f(-4,1);  glVertex2f(-3.6,0.2);  glColor3f(0,0,0);  glBegin(GL\_POLYGON);  glVertex2f(0,-2);  glVertex2f(-0.5,-1.5);  glVertex2f(-1.5,-1);  glVertex2f(-2.6,-0.8);  glVertex2f(-4.2,-0.6);  glVertex2f(-3.6,0.2);  glColor3f(0,0,0);  glBegin(GL\_POLYGON);  glVertex2f(0,-2);  glVertex2f(0.5,-1.5);  glVertex2f(1.5,-1);  glVertex2f(2.6,-0.8);  glVertex2f(4,-0.6);  glVertex2f(3.6,0.2);  glColor3f(0,0,0);  glBegin(GL\_POLYGON);  glVertex2f(2.5,3);  glVertex2f(7,3);  glVertex2f(4,1);  glVertex2f(3.6,0.2);  glColor3f(0,0,0);  glBegin(GL\_POLYGON);  glVertex2f(0.65,2);  glVertex2f(1.4,2.1);  glVertex2f(1.9,2.2);  glVertex2f(2.5,3);  glColor3f(0,0,0);  glBegin(GL\_POLYGON);  glVertex2f(-0.65,2);  glVertex2f(-0.6,2.2);  glVertex2f(-0.5,3);  glColor3f(0,0,0);  glBegin(GL\_POLYGON);  glVertex2f(-0.5,3);  glVertex2f(-0.5,2.5);  //glVertex2f(-0.5,3);  glColor3f(0,0,0);  glBegin(GL\_POLYGON);  //glVertex2f(0,2.6);  glVertex2f(0.5,2.5);  glVertex2f(0.6,2.2);  glColor3f(0,0,0);  glBegin(GL\_POLYGON);  //glVertex2f(0.5,2.5);  glVertex2f(0.5,3);  glEnd();  }  void display() {  glClearColor(1.0f, 1.0f, 1.0f, 1.0f);  glClear(GL\_COLOR\_BUFFER\_BIT);  batman();  glFlush();  }  int main(int argc, char\*\* argv) {  glutInit(&argc, argv);  glutInitWindowSize(600, 600);  glutInitWindowPosition((glutGet(GLUT\_SCREEN\_WIDTH)-600)/2,(glutGet(GLUT\_SCREEN\_HEIGHT)-600)/2);;  glutCreateWindow("Lab Task - 2");  //this line must be below of glutCreateWindow();  gluOrtho2D(-10, 10, -10, 10);  glutDisplayFunc(display);  glutMainLoop();  return 0;  } |
| **Output Screenshot (Full Screen)-** |