**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

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **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**  **/\* Handler for window-repaint event. Call back when the window first appears and**  **whenever the window needs to be re-painted. \*/**  **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)**  **//glPointSize(10.0);**  **// Draw a Red 1x1 Square centered at origin**  **glLineWidth(3.0);**  **glBegin(GL\_LINES);**  **// Each set of 4 vertices form a quad**  **//glColor3ub(127, 0.0, 255);**  **//Line-1**  **glBegin(GL\_POLYGON);**  **// Each set of 4 vertices form a quad**  **glColor3ub(127, 0.0, 255);**  **//Line-1**  **glVertex2f(-0.9f,0.3f);**  **glVertex2f(0.9f,0.3f);**  **glVertex2f(0.9f,0.4f);**  **glVertex2f(-0.9f,0.4f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **// Each set of 4 vertices form a quad**  **glColor3f(0.0f, 0.0f, 1.0f);**  **//Line-1**  **glVertex2f(-0.9f,0.2f);**  **glVertex2f(0.9f,0.2f);**  **glVertex2f(0.9f,0.3f);**  **glVertex2f(-0.9f,0.3f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(0.0f, 1.0f, 1.0f);**  **//Line-1**  **glVertex2f(-0.9f,0.1f);**  **glVertex2f(0.9f,0.1f);**  **glVertex2f(0.9f,0.2f);**  **glVertex2f(-0.9f,0.2f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **// Each set of 4 vertices form a quad**  **glColor3f(0.0f, 1.0f, 0.0f);**  **//Line-1**  **glVertex2f(-0.9f,0.0f);**  **glVertex2f(0.9f,0.0f);**  **glVertex2f(0.9f,0.1f);**  **glVertex2f(-0.9f,0.1f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 0.5f, 0.0f);**  **//Line-1**  **glVertex2f(-0.9f,-0.1f);**  **glVertex2f(0.9f,-0.1f);**  **glVertex2f(0.9f,0.0f);**  **glVertex2f(-0.9f,0.0f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **// Each set of 4 vertices form a quad**  **glColor3f(1.0f, 1.0f, 0.0f);**  **//Line-1**  **glVertex2f(-0.9f,-0.2f);**  **glVertex2f(0.9f,-0.2f);**  **glVertex2f(0.9f,-0.1f);**  **glVertex2f(-0.9f,-0.1f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **// Each set of 4 vertices form a quad**  **glColor3f(1.0f, 0.0f, 0.0f);**  **//Line-1**  **glVertex2f(-0.9f,-0.3f);**  **glVertex2f(0.9f,-0.3f);**  **glVertex2f(0.9f,-0.2f);**  **glVertex2f(-0.9f,-0.2f);**  **glEnd();**  **glFlush(); // Render now**  **}**  **/\* Main function: GLUT runs as a console application starting at main() \*/**  **int main(int argc, char\*\* argv) {**  **glutInit(&argc, argv); // Initialize GLUT**  **glutCreateWindow("OpenGL Setup Test"); // Create a window with the given title**  **glutInitWindowSize(320, 320); // Set the window's initial width & height**  **glutDisplayFunc(display); // Register display callback handler for window re-paint**  **glutMainLoop(); // Enter the event-processing loop**  **return 0;**  **}** |
| **Output Screenshot (Full Screen)-** |

|  |
| --- |
| **Question- 2**  Draw 8X8 Chess Board |
| **Graph Plot (Picture)-** |
| **Code-**  **#include<cstdio>**  **#include<GL/gl.h>**  **#include<GL/glut.h>**  **#include<windows.h>**  **int x=50;**  **int y=50;**  **void blackbox(){**  **glBegin(GL\_QUADS);**  **glColor3ub (1,1,1);**  **glVertex2i(x,y);**  **glVertex2i(x+50,y);**  **glVertex2i(x+50,y+50);**  **glVertex2i(x,y+50);**  **glEnd();**  **}**  **void whitebox(){**  **glBegin(GL\_QUADS);**  **glColor3ub (255,255,255);**  **glVertex2i(x,y);**  **glVertex2i(x+50,y);**  **glVertex2i(x+50,y+50);**  **glVertex2i(x,y+50);**  **glEnd();**  **}**  **void Line(){**  **glBegin(GL\_LINE\_LOOP);**  **glPointSize(20);**  **glColor3ub (1,1,1);**  **glVertex2i(450,450);**  **glVertex2i(50,450);**  **glVertex2i(50,50);**  **glVertex2i(450,50);**  **glEnd();**  **}**  **void myDisplay(void)**  **{**  **glClear(GL\_COLOR\_BUFFER\_BIT);**  **glPointSize(15);**  **for(int j=0;j<8;j++){**  **x=50;**  **for(int i=0;i<8;i++){**  **if (j%2==0){**  **if(i%2==0){**  **blackbox();**  **}**  **else{**  **whitebox();**  **}**  **x+=50;**  **}**  **else{**  **if(i%2==0){**  **whitebox();**  **}**  **else{**  **blackbox();**  **}**  **x+=50;**  **}**  **}**  **y+=50;**  **}**  **Line();**  **glFlush ();**  **}**  **void myInit (void)**  **{**  **glClearColor(1.0, 1.0, 1.0, 1.0);**  **glMatrixMode(GL\_PROJECTION);**  **glLoadIdentity();**  **gluOrtho2D(0.0, 640.0, 0.0, 480.0);**  **}**  **int main(int argc, char\*\* argv)**  **{**  **glutInit(&argc, argv);**  **glutInitDisplayMode (GLUT\_SINGLE | GLUT\_RGB);**  **glutInitWindowSize (640, 480);**  **glutInitWindowPosition (200, 250);**  **glutCreateWindow ("chess bord");**  **glutDisplayFunc(myDisplay);**  **myInit ();**  **glutMainLoop();**  **}** |
| **Output Screenshot (Full Screen)-** |

|  |
| --- |
| **Question- 3**  Create the batman logo given below- |
| **Graph Plot (Picture)-**  **(Not Needed)** |
| **Code-**  **#include <stdlib.h>**  **#include<GL/gl.h>**  **#include<GL/glu.h>**  **#include<GL/glut.h>**  **#include<unistd.h>**  **#include<stdio.h>**  **using namespace std;**  **int m=0;**  **void draw\_line(int x,int y,int sizes,int num){**  **for (int a=x,b=y,c=0;c<num;c++,a+=sizes)**  **{**  **glBegin(GL\_POLYGON);**  **glVertex2i(a,b);**  **glVertex2i(a+sizes,b);**  **glVertex2i(a+sizes,b+sizes);**  **glVertex2i(a,b+sizes);**  **glEnd();**  **}**  **}**  **void vertical\_line(int x,int y,int sizes,int num){**  **for (int a=x,b=y,c=0;c<num;c++,b+=sizes)**  **{**  **glBegin(GL\_POLYGON);**  **glVertex2i(a,b);**  **glVertex2i(a+sizes,b);**  **glVertex2i(a+sizes,b+sizes);**  **glVertex2i(a,b+sizes);**  **glEnd();**  **}**  **}**  **void temp(void)**  **{**  **glClear(GL\_COLOR\_BUFFER\_BIT);**  **glPointSize(5);**  **int sizes=25,blocks=17;**  **int x=9\*sizes ,y=3\*sizes;**  **glColor3ub(0,0,0);**  **draw\_line(x,y,sizes,blocks);**  **x=9\*sizes, y=4\*sizes;**  **blocks;**  **for(int a=0;a<=5;a++){**  **glColor3ub(250,250,0);**  **draw\_line(x,y,sizes,blocks);**  **glColor3ub(0,0,0);**  **draw\_line(x-sizes,y,sizes,1);**  **draw\_line(x+(blocks\*sizes),y,sizes,1);**  **x=x-sizes;**  **y=y+sizes;**  **blocks+=2;**  **}**  **x=3\*sizes,y=10\*sizes;**  **for(int a=0;a<7;a++){**  **glColor3ub(250,250,0);**  **draw\_line(x,y,sizes,29);**  **glColor3ub(0,0,0);**  **draw\_line(x-sizes,y,sizes,1);**  **glColor3ub(0,0,0);**  **draw\_line(x+(29\*sizes),y,sizes,1);**  **y+=sizes;**  **}**  **x=4\*sizes,y=17\*sizes,blocks=27;**  **for(int a=0;a<=5;a++){**  **glColor3ub(250,250,0);**  **draw\_line(x,y,sizes,blocks);**  **glColor3ub(0,0,0);**  **draw\_line(x-sizes,y,sizes,1);**  **draw\_line(x+(blocks\*sizes),y,sizes,1);**  **y+=sizes;**  **x+=sizes;**  **blocks-=2;**  **}**  **x=9\*sizes;**  **glColor3ub(0,0,0);**  **draw\_line(x,y,sizes,blocks+2);**  **x=4\*sizes,y=11\*sizes;**  **blocks=5;**  **for (int a=0;a<6;a++){**  **vertical\_line(a,y,sizes,blocks);**  **x+=sizes;**  **y-=sizes;**  **blocks+=2;**  **}**  **blocks-=2;**  **y+=sizes;**  **vertical\_line(x,y,sizes,blocks);**  **y-=sizes;**  **x+=sizes;**  **blocks=12;**  **vertical\_line(x,y,sizes,blocks);**  **y=20\*sizes;**  **vertical\_line(x,y,sizes,1);**  **x+=sizes;**  **y=7\*sizes;**  **blocks=9;**  **for(int a=0;a<2;a++){**  **vertical\_line(x,y,sizes,blocks);**  **x+=sizes;**  **y+=sizes;**  **blocks--;**  **}**  **blocks++;**  **vertical\_line(x,y,sizes,blocks);**  **x+=sizes;**  **y-=sizes;**  **blocks=14;**  **vertical\_line(x,y,sizes,blocks);**  **x+=sizes;**  **y-=(2\*sizes);**  **blocks=15;**  **vertical\_line(x,y,sizes,blocks);**  **x+=sizes;**  **y-=sizes;**  **blocks=16;**  **vertical\_line(x,y,sizes,blocks);**  **x+=sizes;**  **y+=sizes;**  **blocks=15;**  **vertical\_line(x,y,sizes,blocks);**  **x+=sizes;**  **y-=(2\*sizes);**  **blocks=14;**  **vertical\_line(x,y,sizes,blocks);**  **y=6\*sizes;**  **x=24\*sizes;**  **blocks =16;**  **//170 line**  **for (int a=0;a<=6;a++){**  **vertical\_line(a,y,sizes,blocks);**  **x+=sizes;**  **y-=sizes;**  **blocks-=2;**  **}**  **y=6\*sizes;**  **x=23\*sizes;**  **blocks=16;**  **vertical\_line(x,y,sizes,blocks);**  **y=5\*sizes;**  **x=22\*sizes;**  **blocks=12;**  **vertical\_line(x,y,sizes,blocks);**  **y=21\*sizes;**  **vertical\_line(x,y,sizes,1);**  **x-=sizes;**  **y-=(14\*sizes);**  **vertical\_line(x,y,sizes,9);**  **x-=sizes;**  **y+=sizes;**  **vertical\_line(x,y,sizes,9);**  **glFlush();**  **}**  **void myDisplay(void){**  **glClear(GL\_COLOR\_BUFFER\_BIT);**  **glPointSize(5.0);**  **glFlush();**  **}**  **void myInit (void){**  **glClearColor(1.0,1.0,1.0,0.0);**  **glMatrixMode(GL\_MODELVIEW);**  **glLoadIdentity();**  **gluOrtho2D(0.0,900.0, 0.0, 700.0);**  **}**  **main(int argc,char \*\* argv){**  **glutInit(&argc,argv);**  **glutInitDisplayMode(GLUT\_SINGLE | GLUT\_RGB);**  **glutInitWindowSize(400,500);**  **glutInitWindowPosition(200,150);**  **glutCreateWindow("BATMAN BY NAJMUL UDDIN(18-38293-2)");**  **glutDisplayFunc(myDisplay);**  **glutDisplayFunc(temp);**  **myInit();**  **glutMainLoop();**  **}** |
| **Output Screenshot (Full Screen)-** |