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Experiment -Implement the following polygon filling methods: i) Flood fill / Seed fill ii)Boundary fill; using mouse click, keyboard interface and menu driven programming.

#include <iostream>

#include <math.h>

#include <time.h>

#include

<GL/glut.h> struct

Point { GLint x;

GLint y; }; struct

Color { GLfloat r;

GLfloat g; GLfloat b; }; void init() { glClearColor(1.0, 1.0, 1.0, 0.0); glColor3f(0.0,

0.0, 0.0); glPointSize(5.0);

glMatrixMode(GL\_PROJECTION);

glLoadIdentity();

gluOrtho2D(0, 640, 0, 480);

}

Color getPixelColor(GLint x, GLint y) { Color color;

glReadPixels(x, y, 1, 1, GL\_RGB, GL\_FLOAT, &color); return color; } void setPixelColor(GLint x, GLint y, Color color) { glColor3f(color.r, color.g, color.b); glBegin(GL\_POINTS); glVertex2i(x, y); glEnd(); glFlush(); }

void floodFill(GLint x, GLint y, Color oldColor, Color newColor) { Color color; color = getPixelColor(x, y); if(color.r == oldColor.r && color.g == oldColor.g && color.b == oldColor.b)

{

setPixelColor(x, y, newColor); floodFill(x+1, y, oldColor, newColor); floodFill(x, y+1, oldColor, newColor); floodFill(x-1, y, oldColor, newColor);floodFill(x, y-1, oldColor, newColor);

} return;

}void onMouseClick(int button, int state, int x, int y) {

Color newColor = {2.0f, 1.0f, 1.0f}; Color oldColor = {1.0f, 1.0f, 1.0f};

floodFill(320, 240, oldColor, newColor);

}

void draw\_circle(Point pC, GLfloat radius) { GLfloat step = 1/radius; GLfloat x, y; for(GLfloat theta = 0; theta <= 360; theta += step) { x = pC.x + (radius \* cos(theta)); y = pC.y + (radius \* sin(theta)); glVertex2i(x, y); } } void display(void) {

Point pt = {320, 240}; GLfloat radius = 50;

glClear(GL\_COLOR\_BUFFER\_ BIT); glBegin(GL\_POINTS); draw\_circle(pt, radius); glEnd(); glFlush(); }

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

{ glutInit(&argc, argv);

glutInitDisplayMode(GLUT\_SINGLE|GLUT\_RGB); glutInitWindowSize(640, 480); glutInitWindowPosition(200,

200); glutCreateWindow("Open GL");

init();

glutDisplayFunc(display); glutMouseFunc(onMouseClick); glutMainLoop(); return 0;

}