**计算机图形学实验**

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实验六 填充及输出图元算法

时间：2020年11月6日

地点：信息学院2202机房

1、实验内容

教材P69，输出图元

2、实验目的

输出折线等不同的图元。

3、实验代码

**#include <windows.h>**

**#include <GL/glut.h>**

**GLsizei** **winWidth** **=** **600,** **winHeight** **=** **500;**

**GLint** **xRaster** **=** **25,** **yRaster** **=** **150;**

**GLubyte** **label[36]** **=** **{'J','a','n','F','e','b','M','a','r',**

**'A','p','r','M','a','y','J','u','n',**

**'J','u','l','A','u','g','S','e','p',**

**'O','c','t','N','o','v','D','e','c'**

**};**

**GLint** **dataValue[12]** **=** **{420,342,324,310,262,185,190,196,217,240,312,438};**

**void** **init(void)**

**{**

**glClearColor(1.0,1.0,1.0,1.0);**

**glMatrixMode(GL\_PROJECTION);**

**gluOrtho2D(0.0,** **600.0,** **0.0,** **500.0);**

**}**

**void** **lineGraph(void)**

**{**

**GLint** **month,** **k** **;**

**GLint** **x** **=** **30;**

**glClear(GL\_COLOR\_BUFFER\_BIT);**

**glColor3f(0.0,0.0,3.0);**

**glBegin(GL\_LINE\_STRIP);**

**for(** **k** **=** **0;** **k** **<** **12;** **k++)**

**{**

**glVertex2i(x** **+** **k** **\*** **50,** **dataValue[k]-4);**

**}**

glEnd();

glColor3f(1.0, 0.0, 0.0);

xRaster = 20;

for(month = 0; month < 12; month++)

{

glRasterPos2i(xRaster, yRaster);

for(k = 3\*month; k< 3\*month+3; k++)

glutBitmapCharacter(GLUT\_BITMAP\_HELVETICA\_12, label [k]);

xRaster += 50;

}

glFlush();

}

void barChart(void)

{

GLint month, k;

glClear(GL\_COLOR\_BUFFER\_BIT);

glColor3f(1.0, 0.0, 0.0);

for(k = 0; k < 12; k++)

glRecti(20 + k\*50, 165, 40 + k\*50, dataValue[k]);

glColor3f(0.0, 0.0, 0.0);

xRaster = 20;

for(month = 0; month < 12; month++)

{

glRasterPos2i(xRaster, yRaster);

for(k = 3 \* month; k < 3\*month + 3; k++)

glutBitmapCharacter(GLUT\_BITMAP\_HELVETICA\_12, label[k]);

xRaster += 50;

}

glFlush();

}

void winReshapeFcn(GLint newWidth, GLint newHeight)

{

glMatrixMode(GL\_PROJECTION);

glLoadIdentity();

gluOrtho2D(0.0, GLdouble(newWidth), 0.0, GLdouble(newHeight));

glClear(GL\_COLOR\_BUFFER\_BIT);

}

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

{

glutInit(&argc, argv);

glutInitDisplayMode(GLUT\_SINGLE | GLUT\_RGB);

glutInitWindowPosition(100,100);

glutInitWindowSize(winWidth, winHeight);

glutCreateWindow("Line Chart Data Plot");

init();

glutDisplayFunc(barChart);

glutReshapeFunc(winReshapeFcn);

glutMainLoop();

return 0;

}

4、实验结果



