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# Subject: Computer Graphics & Gaming Lab

**WRITE PROGRAM TO SIMULATE ANY ONE OF SIMILAR SCENE**

**1) CLOCK WITH PENDULUM**

**Code –**

**#include<math.h>**

**#include<iostream>**

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

**using namespace std;**

**float inc=1.0;**

**float angle=135;**

**GLfloat minAngle=0.0;**

**float drawCircle(float segments,float radius,float sx,float sy)**

**{**

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

**for(int i=0;i<segments;i++)**

**{**

**float theta=2.0\*3.142\*float(i)/float(segments);**

**float x=radius\*cos(theta);**

**float y=radius\*sin(theta);**

**glVertex2f(x+sx,y+sy);**

**}**

**glEnd();**

**}**

**void draw(float x1,float y1,float angle)**

**{**

**float segments=100;**

**float radius=10.0;**

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

**glColor3f(1,0,0); //house**

**glLineWidth(5);**

**glVertex2f(15,12);**

**glVertex2f(12,-10);**

**glVertex2f(-12,-10);**

**glVertex2f(-15,12);**

**glVertex2f(-18,12);**

**glVertex2f(0,20);**

**glVertex2f(18,12);**

**glVertex2f(15,12);**

**glEnd();**

**glLineWidth(5); //watch circle**

**glColor3f(0,0,1);**

**drawCircle(segments,radius,x1,y1);**

**glLineWidth(3); //watch circle**

**glColor3f(1,0,1);**

**drawCircle(10,2.0,x1,y1);**

**double radians=angle\*3.142/180;**

**float x2=(radius\*3.4)\*cos(radians);**

**float y2=(radius\*3.4)\*sin(radians);**

**float radius2=radius/3.0;**

**glColor3f(0,1,0); //pendulum**

**glLineWidth(5);**

**drawCircle(segments,radius2,x2,y2);**

**glBegin(GL\_LINES);**

**glVertex2f(x1,-1\*(radius)+0.2);**

**glVertex2f(x2,y2);**

**glEnd();**

**glColor3f(0.8,1,0); //hr hand**

**glLineWidth(5);**

**glBegin(GL\_LINES);**

**glVertex2f(x1,y1);**

**glVertex2f(radius/2.0,radius/2.0);**

**glEnd();**

**minAngle += 0.2;**

**glColor3f(1,0,1); //min hand**

**glLineWidth(5);**

**glPushMatrix();**

**glTranslatef(x1, y1, 0.0);**

**glRotatef(-minAngle, 0.0, 0.0, 1.0);**

**glBegin(GL\_LINES);**

**glVertex2f(x1,y1);**

**glVertex2f(x1,((radius/2.0)\*2.0));**

**glEnd();**

**}**

**void display()**

**{**

**glClearColor(0,0,0,1);**

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

**glLoadIdentity();**

**glTranslatef(-10,10,-30);**

**glColor3f(1,1,1);**

**if(angle>300)**

**{**

**angle=300;**

**inc=-inc;**

**}**

**if(angle<240)**

**{**

**angle=240;**

**inc=-inc;**

**}**

**angle += inc;**

**draw(0,2,angle);**

**glutSwapBuffers();**

**}**

**void reshape(int w,int h)**

**{**

**glMatrixMode (GL\_PROJECTION);**

**glLoadIdentity ();**

**gluPerspective (100, (GLfloat)w / (GLfloat)h, 0.5, 100.0);**

**glMatrixMode (GL\_MODELVIEW);**

**}**

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

**{**

**glutInit(&argc,argv);**

**glutInitDisplayMode(GLUT\_DOUBLE);**

**glutInitWindowSize(800,600);**

**glutInitWindowPosition(0,0);**

**glutCreateWindow("Clock");**

**glutDisplayFunc(display);**

**glutIdleFunc(display);**

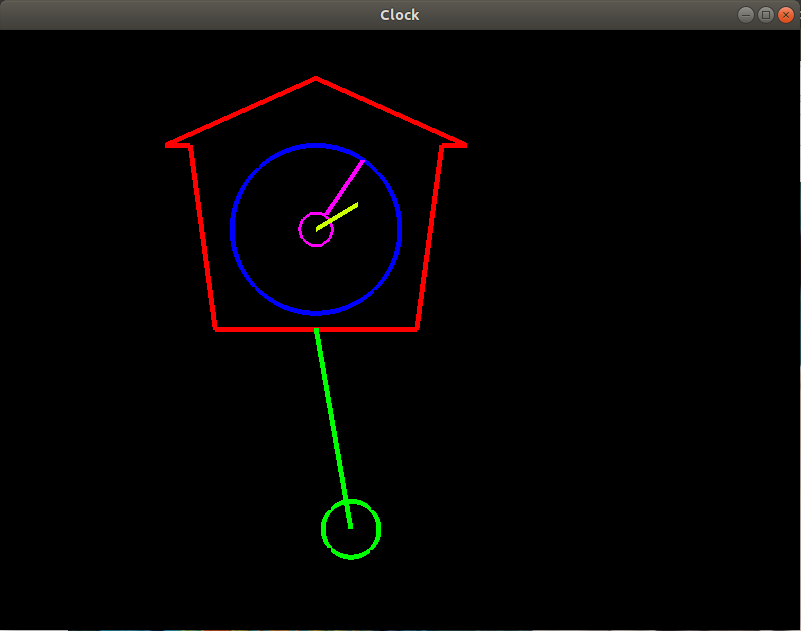
**glutReshapeFunc(reshape);**

**glutMainLoop();**

**return 0;**

**}**

**Output –**

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