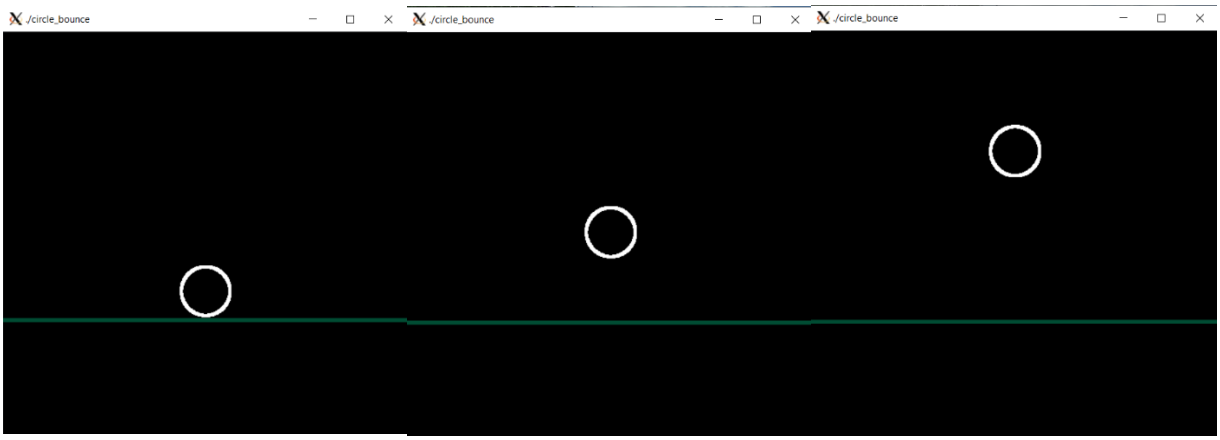
CSE 4200 Lab 8 – Spencer Wallace

Summary: Lab completed successfully. I was able to use the program from the notes as a reference and animate a bouncing ball. Because I was able to complete this lab I am giving myself full points.

Outputs



Code

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

#include <GL/gl.h>

#include <GL/glu.h>

#include <stdio.h>


#define drawOneLine(x1,y1,x2,y2) glBegin(GL_LINES); glVertex2f ((x1),(y1)); glVertex2f ((x2),(y2)); glEnd();


void init(void)

{

 glClearColor(0, 0, 0, 0);

 glPointSize(4.0);

 glMatrixMode(GL_PROJECTION);

 glLoadIdentity();
```

```
  gluOrtho2D(-500, 500, -500, 500);
  glMatrixMode(GL_MODELVIEW);
  glLoadIdentity();
}

void Circle(int Move, int Radius)
{
  int r = Radius;
  int x = 0;int y = r;
  int d = 3 / 2 - r; // = 1 - r
  glClear(GL_COLOR_BUFFER_BIT);
  glColor3f(1.0, 1.0, 1.0);   while (x <= y) {
    glVertex2i( +x, y + Move);
    glVertex2i( +y, x + Move);
    glVertex2i( -x, y + Move);
    glVertex2i( -y, x + Move);
    glVertex2i( -x, -y + Move);
    glVertex2i( -y, -x + Move);
    glVertex2i( +y, -x + Move);
    glVertex2i( +x, -y + Move);
    if (d < 0)
      d += (2 * x) + 3;
    else {
      d += (2 * (x - y)) + 5;
      y -= 1;
    }
    x++;
  }
  glFlush();
```

```
}

int move = 20;
int radius = 60;

bool bounce = false;
void animate() {
  if (bounce == true) { // bounce up
    if ((move + radius) <= 300) {
      move += 15;
    }
    if ((move + radius) >= 300) {
      bounce = false;
    }
  }
  if (bounce == false) {
    move -= 10;
    if ((move - radius) <= -200) {
      bounce = true;
    }
  }
  glutPostRedisplay();
}

void timerHandle(int value)
{
  animate();
  glutPostRedisplay();
  glutTimerFunc(25, timerHandle, 0);
```

```
}

void visHandle(int visible)
{
  if (visible == GLUT_VISIBLE)
    timerHandle(0);
  else
    ;
}

void display(void)
{
  glClear(GL_COLOR_BUFFER_BIT | GL_DEPTH_BUFFER_BIT);
  glBegin(GL_POINTS);
  Circle(move, radius);
  glEnd();
  glColor3f(0.0, 0.3, 0.2);
  glLineWidth(5.0);
  glBegin(GL_LINE);
  drawOneLine(-500, -210, 500, -210);
  glEnd();
  glutSwapBuffers();
}

int main(int argc, char** argv)
{
  glutInit(&argc, argv);
  glutInitDisplayMode(GLUT_DOUBLE | GLUT_RGB);
  glutInitWindowPosition(150, 150);
```

```
  glutInitWindowSize(500, 500);
  glutCreateWindow(argv[0]);
  init();
  glutDisplayFunc(display);
  //glutVisibilityFunc(visHandle);
  glutTimerFunc(25, timerHandle, 0);
  glutMainLoop();
  return(1);
}
```