```
1 #pragma once
 2
 3 #include <iostream>
 4 #include <vector>
 5 using namespace std;
 6
 7 #include <GL/glew.h>
 8 #include <GLFW/glfw3.h>
9 #include <glm/glm.hpp>
10
11 class Shapes {
12
13 public:
14
       Shapes();
15
       ~Shapes();
16
17
       void Load();
18
       void Draw();
19
       void checkErrorShader(GLuint shader);
20
       vector<GLfloat> vertexPositions;
21
22
23
       GLuint
                        program;
24
       GLuint
                        vao;
25
       GLuint
                        buffer;
26
       GLint
                        mv_location;
27
       GLint
                        proj_location;
28
       GLint
                        color_location;
29
       glm::mat4
                        proj_matrix = glm::mat4(1.0f);
                        mv_matrix = glm::mat4(1.0f);
30
       glm::mat4
31
       glm::vec4 fillColor = glm::vec4(1.0, 0.0, 0.0, 1.0);
32
       glm::vec4 lineColor = glm::vec4(0.0, 0.0, 0.0, 1.0);
34
       float lineWidth = 2.0f;
35
36 protected:
37
       string rawData;
                                // Import obj file from Blender (note: no
          textures or UVs).
38
       void LoadObj();
39 };
40
41 class Cube : public Shapes {
42 public:
43
       Cube();
       ~Cube();
44
45 };
46
47 class Sphere : public Shapes {
48 public:
49
       Sphere();
50
       ~Sphere();
51 };
52
```

```
...mesProgrammingObjects\Bouncing Ball\VS2015_x86\Shapes.h
53 class Arrow : public Shapes {
```

```
53 class Arrow : public Shapes {
54 public:
55 Arrow();
56 ~Arrow();
57 };
```