Graphics Engine Project

Week1 Requirements:

- download freeglut library, include it in your IDE and build/run the project
- create class Point containing (.h and .cpp files):
    o attributes
        ▪ coordinates x,y of type double - private
    o member functions
        ▪ default constructor
        ▪ parameterized constructor
        ▪ destructor
        ▪ (getters/setters)
        ▪ draw function in which you create an instance of EnglineGlut and call the corresponding draw function from the Glut engine.

Example:

```
void Point2D::draw()
{
    EngineGlut e;
    e.drawPoint(this->coordinates[0], this->coordinates[1]);
//coordintaes of the point
}
```

- create class Line containing (.h and .cpp files):
    o attributes:
        ▪ 2 Points - private
    o member functions:
        ▪ default constructor
        ▪ parameterized constructors
        ▪ destructor
        ▪ draw function (as the one for the Point class)
- create class Triangle containing (.h and .cpp files):
    o attributes:
        ▪ 3 Points - private
        ▪ 1 boolean variable for the way of drawing (which is 1 if the triangle is full – a surface is drawn, 0 if the triangle is not full – just 3 lines are drawn)
    o member functions:
        ▪ default constructor
        ▪ parameterized constructors
        ▪ destructor
        ▪ draw function (here you should check the boolean variable to see which one of drawLine or drawSurface functions you will call)

- create class Rectangle containing (.h and .cpp files):
    - o attributes:
        - 4 Points - private
        - 1 boolean variable for the way of drawing (which is 1 if the rectangle is full – a surface is drawn, 0 if the rectangle is not full – just 4 lines are drawn)
    - o member functions:
        - default constructor
        - parameterized constructor (as parameters you should have the coordintaes for one point, the width and the height – the rest of the points are computed based on width and height).
        - destructor
        - draw function (here you should check the boolean variable to see which one of drawLine or drawSurface functions you will call)
- add test functions for each class in the main.cpp file, such as:

```
void testLine()
{
    Line line(-200,0, 200, 100);
    line.draw();
}
```