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POO: Lab 2

1. Objective of the session

In this second lab we were told to implement part of the program design of Seminar 2 such as different classes and instances. Consequently, it was needed to create the classes representing polygons, continents and worlds.

2. Polygonal Regions

The goal of this exercise was to implement the code for the class which represents the polygonal regions seen in the seminar.

We first implemented its private attribute. We only added a List of Points named “points”. This class point is already coded and it’s formed by two coordinates and its getters. Then we implemented the PolygonalRegion’s constructor, and then the method “GetArea”, which was mandatory. This “GetArea” class is based on the equation found in the website of computing the area of a convex polygon. Therefore, in the code we implemented the calculations after having created a Nx2 matrix.

The last method in this class is “draw”. It is used, as the name says, to draw the different polygons while we are executing the code. In draw class we declare two different arrays, one for x coordinates and the other for the y coordinates. We use a “for” to add the different coordinates from each point into these two arrays, one coordinate per position. And then once we have fulfilled each array, we draw the polygon.

To test all the implemented code for these classes, we were told to modify the source code of MyMap which was given to us in the instruction sheet. So with this we were able to use the graphical interface correctly.

3. Continents and World

The last point to do was to create two different classes, Continent and World. First we implemented Continent’s class. We only needed one private attribute, which was a list of PolygonalRegion, named countries.

Then we implemented its constructor and its getter and setter. We also created the same classes as in Polygonal Regions, which are “getTotalArea" and “Draw”. The draw class is used only ro draw all the regions of the continent.

Secondly we coded all the World’s class, which is basically the same as the continent’s one, but we have a list of continents as our private attribute instead of a list of PolygonalRegion.

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4. Conclusion

We finally ended with the implementation of myMap class. Here, apart from pasting the part that was given in the instruction sheet, we also made new instances of more things. In other words, we instanced 3 more Polygonal Regions and printed their area.

Moreover, in order to eventually create a world instance, we instanced two continents, made up each one of two different regions, and also printed their total area. Having done that, we finally added those continents inside our final world.

To conclude, we firstly had different problems with some of the methods because we didn't know how to resolve them properly, so we got stuck in them. Despite the fact, we finally ended up doing all of them correctly.