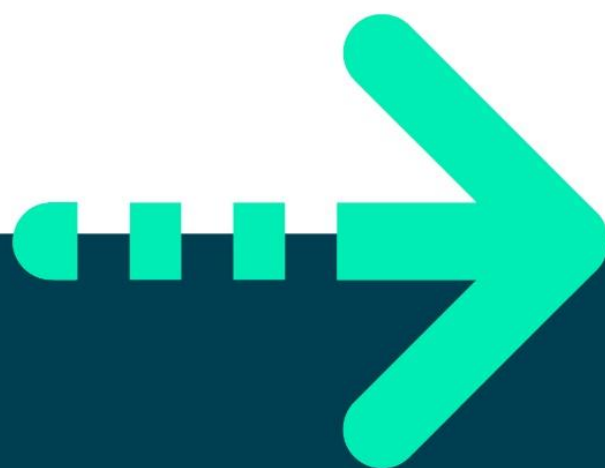




INHERITANCE – GETTING STARTED





Inheritance – getting started

Objective

The primary objective for this lab is to enable you to derive new types and to add specialist functionality.

Overview

The lab introduces some of the basic concepts of the inheritance story. As mentioned in the associated session, in order to implement inheritance, you must first have a class that provides the fundamental definition or behavior you need.

Step by step

1. Open the Labs project and then add a new package called lab17.
2. Copy the Program, Map and Token classes from the previous lab (Lab 09).
3. Create two new classes called Submarine and Plane, both of which extend Token.
4. Give both classes a static int field called **maxSpeed** with the values 15 for Submarine and 360 for Plane.
5. Give Submarine an int field **depth**, a getter method for that, the method **dive()** with the int parameter **howDeep**, and the method **surface()**. The value of depth will be increased by howDeep amount when dive() is called, and reset to the initial value of zero when surface() is called.

For the sake of manageability, it is assumed that all instances of Submarine are located in the sea, and that the depth of the sea is sufficient for the vessel to dive. If you had unlimited time (and the inclination), you might wish to add an integer value of relief (negative values for depth below sea level and positive values for height above sea level) for each of the 200,000 coordinate points in the present example. However, this would be outside the realm of usefulness.

6. Give Plane an int field height, a getter method for that, the method climb() with the int parameter **howHigh**, and the method **land()**. The value of height will be increased by howHigh amount when climb() is called, and reset to the initial value of zero when land() is called.
7. Create several instances of Plane and Submarine in suitable parts of the map. Test that they can be moved around in the same way as in the earlier Lab.
8. Test that your planes can climb and land, and that your submarines can dive and surface.



**** End ****

