**Object Oriented Programming (OOP)**

**Task1**

1. Create base class ‘Substance’ and inherit all other classes from it.
   1. Substance should have a method ‘interact’ which takes Substance object as a parameter and returns a String
2. Create final class ‘Air’ with only field:
   1. volume
3. Create abstract class ‘Water’. This class should have the following fields:
   1. temperature,
   2. volume
4. Create three Water subclasses: LiquidWater, Vapor, and Ice.
5. Each class returns different result of interacting with another substance:
   1. Water + Air, Air + Water: “Evaporation/Condensation”
   2. Water + Water, Air + Air, Air + Vapor, Vapor + Air, Vapor + Vapor: “Mixing”
   3. **null** in all other cases (to keep it simple)
6. All our substances exist under normal conditions. So don’t forget liquid water’s temperature can be only 0-100 degrees C.
7. Create an Air, LiquidWater, Vapor, and Ice **instances** and show how they interact with each other.

**Task2. HOTFIX.**

We need to change something in the previous program.

1. Add ‘**humidity**’ field to Air
2. If ‘humidity’ is 100% or higher, Water+Air interaction results in “Condensation”. Otherwise, the result is “Evaporation”.
3. Interaction result should never be **null**, return **empty string** instead (“”).
4. Note that your work should be **compatible** with any code written for the previous version. Maybe it’s a good idea to use deprecation instead of simply changing old code.

**Task3**

Review the code, make sure it’s readable, has comments, all getters/setters and proper constructors are present etc.