# Exercises for Chapter 18 – Attributes

## Exercise 1

***The logging task Exercise***

* A new project breaks too many times.
  + As a result the following logging task should be performed:
  + Whenever an exception is thrown, relevant (problematic) objects should be sent to a logging mechanism: a method **LogObjectFields** of an **ObjectLogger** class.
  + The method gets an object as a parameter and should print object’s name and type and for each of its fields: field name, type and value.
* Note:
  + The objects logger doesn’t have to recursively log reference type fields.
  + Make sure you correctly handle null fields' values.
  + Bonus! Log also object base classes fields!
* The object logger we have just created helped a lot.
  + However, the logging output contains lots of irrelevant information.
* Therefore, the logging mechanism should be enhanced to selectively log only “problematic” fields.
* Find a way to specify such “logging required” fields.
* Enhance the object logger such that it will log only the specified fields.

## Exercise 2

***The Singletons Exercise***

* In the previous chapter you have created a Repository of Singletons
* In this exercise we want to get rid of the ISingleton marker interface
* Use the Attribute **[Singleton("X")]** instead