Homework: High Quality Classes

This document defines the homework assignments from the ["High Quality Code" Course @ Software University](). Please submit as homework a single **zip** / **rar** / **7z** archive holding the solutions (source code) of all below described problems.

Problem 1. Abstraction

Use the VS **solution** "**Abstraction**".

- Refactor its code to provide good abstraction.
- Move the properties and methods from the class Figure to their correct place.
- Move the common methods to the base class's interface.
- Remove all duplicated code (properties / methods / other code).

Problem 2. Encapsulation

Use the VS **solution** "**Abstraction**".

- Establish good encapsulation in all classes.
- Ensure that incorrect values cannot be assigned in the internal state of the classes.

Problem 3. Cohesion and Coupling

Use the VS **solution** "**Cohesion-and-Coupling**".

- Refactor its code to follow the principles of good abstraction, loose coupling and strong cohesion.
- Split the class Utils to other classes that have strong cohesion and are loosely coupled internally.

Problem 4. Inheritance and Polymorphism

Use the VS **solution** "**Inheritance-and-Polymorphism**"

- Follow the best practices in high-quality classes.
- Redesign the classes and refactor the code.
- Extract abstract base class and move all common properties in it.
- Encapsulate the fields and make sure required fields are not left without a value.
- Reuse the repeating code though base methods.