This document describes the **team work assignment** for Telerik Academy students studying Object-Oriented Programming (OOP).

# Project Description

Design and implement **an object-oriented application** by choice. It could be a simple game (e.g. Minesweeper, Tetris, Xonix or other), component library (windows, buttons, text boxes, menus, etc.), business application (e.g. car store, auction, movie rental, bug tracker, knowledge management system, e-library, text editor), or any other. You are absolutely **free to choose the topic of your work**.

## General Requirements

Please define and implement the following object-oriented assets in your project:

* At least **3 interfaces** (with one or more implementations)
* At least **10 classes** (implementing the application logic)
* At least **1 abstract class** (with inheritors)
* At least **1 exception class** (with usage in your code)
* At least **1 structure**
* At least **1 enumeration**
* At least **2 events** (with subscribers)
* At least **1 design pattern** (e.g. Composite, Singleton, Factory, Wrapper, Bridge, Command, Iterator, …)

You might read about design patterns in [Wikipedia](http://en.wikipedia.org/wiki/Software_design_pattern), [Sourcemaking](http://sourcemaking.com/design_patterns), [DoFactory](http://www.dofactory.com/Patterns/Patterns.aspx) and others.

## Additional Requirements

* Follow the **best practices for OO design**: use data encapsulation, use exception handling properly, use delegates and events like it is recommended in MSDN, use inheritance, abstraction and polymorphism properly, follow the principles of strong cohesion and loose coupling.
* Obligatory use **Team Foundation Server (TFS)** to keep your source code and for team collaboration (you might use <http://tfs.visualstudio.com> or <http://codeplex.com>). SVN or Git are now allowed. Use TFS.
* Provide a **class diagram** (to visualize all types).

## Optional Requirements

If you have a chance, time and a suitable situation, you might add some of the following to your project:

* **Static members** (fields, properties, constructor, etc.)
* **Constants, generic types, indexers, operators**
* **Lambda expressions** and **LINQ**
* Implementation of **IEnumerable<T>**, **ICloneable**, **ToString()** override
* **Namespaces** (if your classes are too much)

## Non-Required Work

* **User interface (UI)** is not required. You do not need to provide graphical user interface (GUI) or web or mobile UI. You may implement the UI in the **console** or do not have UI at all. Of course, if you are capable to build WPF or Web-based UI, you are free to do it but beware: it takes time (more than you expect)!
* **Completely finished project** is not obligatory required. It will not be a big problem if your project is not completely finished or is not working greatly. This team work project is for educational purpose. Its main purpose it to experience **object-oriented modeling** and **OOP** in a real-world project and to get some experience in **team working** and team collaboration with TFS.

## Deliverables

Put the following in a **ZIP archive** and submit it (each team member submits the same file):

* The complete **source code**.
* Brief **documentation** of your project (2-3 pages). It should provide the following information (in brief):
  + Team name and list of team members
  + Project purpose – what problem do you solve?
  + Class diagram of your types
  + The URL of your TFS repository
  + Any other information (optionally)
* Optionally provide a **PowerPoint presentation** designed for the project defense.

## Public Project Defense

Each team will have to deliver a **public defense** of its work in from of the other students and trainers. You will have **only 5 minutes** for the following:

* **Demonstrate** the application (very shortly).
* Show the **class diagram** (just a glance).
* Show the **source code** in the **TFS** web-based source code browser.
* Show the **commits logs** to confirm that team member have contributed.
* Optionally you might prepare a PowerPoint presentation (3-4 slides).

Please be **strict in timing**! Be **well prepared** for presenting maximum of your work for minimum time. Bring your own laptop. Test it preliminary with the multimedia projector. Open the project assets beforehand to save time. You have **5 minutes**, no more.

## Give Feedback about Your Teammates

You will be invited to **provide feedback** about all your teammates, their attitude to this project, their technical skills, their team working skills, their contribution to the project, etc. The feedback is important part of the project evaluation so **take it seriously** and be honest.