

C# and Visual Studio

Practicum and Team Project

Making a game of Xiang Qi 象棋

Week 1 – 16h

- Introduction to C#
 - Basics: Console IO, Variables, Branching, Iterations
 - OOP: Class definition, *this* keyword, Multiple constructors, Abstract Classes
- Introduction to Visual Studio
 - File structure: Solution, project, files
 - General usage: Interface, Builder, Debugger
 - Version control: Connecting to GitHub (Git usage to be self-learned by students)
- Design considerations for the game of Xiang Qi
 - Important coding habits: D.R.Y. (don't repeat yourself), Meaningful names, Indentation
 - Model-View-Controller design pattern
 - Unicode / UTF-8, Colours in Console mode
 - Teamwork: sharing ideas about design, game rules, implementation, etc.

Mid-course project

- Organisation
 - Teamwork, by group of 4 to 5 students
 - Organised on their free time
 - Expected workload: 30 man.hour (6-8h per student if work is properly shared)
- Objective
 - Deliver a basic Console version of the Xiang Qi game
 - Content:
 - Interface:
 - Drawing board
 - Interactions with user (which piece to move, where to move it)
 - Features:
 - Detecting invalid moves
 - Moving pieces
 - Capturing ("Eating") the opponent's pieces
 - Implementation considerations:
 - Follow the MVC pattern: separate model/controller from view!
 - Make proper use of classes and object instantiation
 - /!\ Important coding habits /!\ (DRY, indentation...)
 - Deliverable:
 - Source code and working executable
 - Ability to explain your code and design choices

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Notes:

Reference books

- C# in a Nutshell 8.0 - O'Reilly 2019 - Joseph Albahari
- C# in Depth, 4E - Manning 2019 - Jon Skeet
- Pro C# 7 - Apress 2017 - Andrew W. Troelsen, Philip Japikse
- C# 7 Quick Syntax Reference - Apress 2018 - Mikael Olsson

Useful links

- Microsoft's C# portal: <https://docs.microsoft.com/en-us/dotnet/csharp/>
- C# Language Reference : <https://docs.microsoft.com/en-us/dotnet/csharp/language-reference/>
- Git / GitHub crash course: <https://www.udemy.com/course/git-and-github-crash-course-creating-a-repository-from-scratch/>

