

# Object-Oriented Programming

## Assignment 4

### Create a Game

The objective of this assignment is to design and implement a computer game using object-oriented programming in C#. You can choose any game you like, subject to only a few requirements as outlined below. You should use object-oriented analysis to identify suitable classes and methods, and provide some design documentation before you start programming.

### Requirements

The idea of this assignment is to practice object-oriented design. Therefore, your game is required to

Use at least three user-defined classes.

Three user-defined classes means the form plus three classes that you define yourself. All games are subject to approval by the lecturer. Games that are too simple or too similar to examples presented in class or in the textbook (Space Invaders) or assignments that you have done before will not be approved. Different students are expected to develop different games. Apart from that, you are free to design a game of any genre or description that interests you. We are just looking for a nice game that is entertaining and fun!

### Exercise 1 (10 marks)

Some written documentation of your idea and your design is to be handed in at the end of the first week. The documentation will provide a basis for discussion about your design before you proceed too far with implementation. Please upload following material on Moodle before the due date.

- A title and short written description of your game in English. The description should not be longer than one or two paragraphs—if you need more space to describe it, you probably will not have the time to implement it.
- A paper prototype of your user interface.
- A UML class diagram showing the relationship between the classes in your program and the key methods.

**Due date for design documentation: Friday 4 February 2022, 17:00**

## Verification

You are advised and encouraged to discuss your game proposal with the lecturer as soon as you have got an idea. If you get your game approved prior to submission, you can start programming, and there will be no need for verification of this part of the assignment. Otherwise you will have to be available for discussion on Tuesday 8 February 2022 at 13:00 in the Lab.

## Exercise 2 (30 marks)

Implement your game. Your final submission will be assessed for

- Object-oriented design (choice of classes and methods)
- Code quality (structure of methods and absence of bugs)
- Game and GUI design (usability and entertainment value)

## Submission

Please create a `.zip` archive containing all the files along with the COVERSHEET and submit the archive through Moodle.

**Due date for final submission: Tuesday, 15 February 2022, 11:00**

## Verification

This assignment will be verified on Wednesday 16 February 2022. Prior verification times can be booked via email during the week starting Monday 7 February 2022.

Please note that verification is required for this assignment, and failure to show for verification of the design documentation (if the game was not pre-approved) or of the game, results in 0 marks.