Mobile Architectures

Practical Work 2018/19

With this work it is intended to develop two applications, one for iOS devices and another for Android devices. The applications themes are the following:

IOS Application – Management of exam dates

An application should be developed in order to manage the exam dates of the various Curricular Units (CU) in which a BSc student of the DEIS is enrolled.

The information of all CU should be introduced by the student, and structures should be created that allow the storage and management of the following information by each CU: name, year and semester, exam dates of the two regular seasons and special season.

The application must use one or more TableView components to list and allow access to each CU. It must be allowed to sort the elements by name (alphabetically), year / semester and exam dates.

The data persistence must be guaranteed and the application must be intuitive and easy to use.

Android Application - ReversISEC

A version of the Reversi Game should be developed, which should be based on the description and rules of the modern version described in http://en.wikipedia.org/wiki/Reversi, but with the following changes:

- Each player has two cards which can be used only after the 5th play of each player:
  - the "Play again" card;
  - the "Pass turn" card;
- Each card can only be used once;
- The use of the card is made by selecting it before making a normal play;
- With the “Play again” card the user can play two times consecutively;
- With the “Pass turn” card the turn is passed immediately to the other player.

The game can work in 3 modes:

- 1 player mode, against "computer";
- 2 player mode – 1 device;
- 2 player mode – 2 devices. This game mode should be implemented using the local IP network, using sockets. All messages exchanged between the two devices must conform to the JSON format.

In "1 player" mode the computer's move can be performed in two ways: play a random valid move or a smart move. The latter form is optional and, therefore, will be given up to 5% bonus in the final classification.

The "2 Player" modes could be interrupted, continuing the game in "1 player vs. computer" mode. When in "2 players – 1 device" mode the current player continues to play and the opponent becomes the "computer". In "2 players – 2 devices" mode, when the option is activated by one of the players or the network connection is lost, each player will continue to play locally in "1 player" mode.

When in "1 player" mode it should be possible to switch to "2 players – 1 device" mode.
The application must manage the profile of the player, which can have a photo captured by the application (without using other camera applications installed on the device). When playing in "2 players – 2 devices" mode it should be possible to see the name and photo of the opponent player.
A rank of the last games played, their winners, game modes and results must be maintained.
The game must be prepared to be played in portrait or landscape mode and should have adequate layouts for smartphone and tablet.

Assessment :

- **Managment of exam dates 20,0%**
  - Interface and ease of use (includes CU data) 5,0%
  - Edit, delete and reset of all information 5,0%
  - List sorting 5,0%
  - Persistence of data 5,0%
- ***ReversISEC Application*** **..... 70,0%**
  - Support structures and implementation of game rules 10,0%
  - Interface and user interaction 7,5%
  - 1 Player mode, against computer 10,0%
  - 2 Player mode – 1 device 5,0%
  - 2 Player mode – 2 devices (includes network and JSON format) 10,0%
  - Intermode changing 7,5%
  - Player profile (with photo) and its sharing 5,0%
  - Support for different languages (at least PT and EN) and credits 2,5%
  - Support for different screen orientations 2,5%
  - Rank (listing and management) 2,5%
  - Code robustness and quality 7,5%
  - Smart play ..... (bonus) 0,0% – 5,0%
- **Technical report 7,5%**
- **User manual 2,5%**

Teamwork: groups of 2 students
Submission deadline: 13:00:00 of the 31.12.2018

Submission format:
Delivery via Moodle in a single ZIP file with the following name:
`AMOV.2018.2019.<student1_number>.<student2_number>.zip`
This file should include:
- all code (folders with projects) with all the essential resources for compilation and execution;
- technical report (PDF);
- user manual (PDF).