# BSc in Software Development – Year 4
## Mobile Applications Development 3 Project
## Part 2 – Implementation

You now have a design for the game.  The next step is implementation.  From the design document you should have specs for the required elements:

1. **Front End**: A term applied to all menus and screens that occur outside of the gameplay.  This takes the player from the title screen to the point that gameplay begins.
2. **In-Game Menus**: A set of menus and screens accessed in-game, often from a pause menu. These form part of the game mechanisms rather than being distinctly separate.
3. **Control Mechanisms**: The way in which the player controls the game entities.  Many games have just one control mechanism.
4. **The Game**: The gameplay screens showing the initial setup, how the action starts, a midpoint in play and the winning/progression conditions depending on the game you are designing.  If the game is episodic in nature, then explain how episodes are defined and how the player moves between them.
5. **Level Design**: There will be at least 3 levels for the player. Considering the game mechanics are mostly the same across the levels, you need to specify the difference between levels.
6. **Enemies/Targets**: Provide sprites, placement options, points values, frequency of occurrence and other relevant properties for these.
7. **Collectibles/Power ups**: Provide sprites, placement options, point/power values, spawn rates and other relevant properties for these.
8. **Multiplayer functionality**: the game is playable as both single and multiplayer. Specify how the players interact (for example, are they competing against each other or cooperating?) and how the player data is displayed during the game.

If the designer has not provided these, then you will need to contact them to arrange.

The User Experience is a critical aspect of any game.  It is an important factor for the implementation of the control system, the menus and the other game components in this instance.  The Developer Diary will provide evidence of the decision making and research around the user experience.  This includes:

- the rate of increasing difficulty
- the speed of gameplay
- win/loss conditions
- the placement of the controls
- the appropriateness of the control mechanics
- the user of colours and text elements on the user interface

**Submission**

**December 17th** – Final implementation of the game is due by 4pm. The lab sessions on the 13th will provide a means to share a video of your game for the class to see and evaluate. If you have a playable version that you can share, then that is even better. The Developer Diary is due on December 17th also. This is an ongoing document as explained below and will naturally be finished with the development of the game.

**Please follow the upload instructions on Learn Online carefully.**

The Developer Diary will be uploaded as a PDF document to Learn Online with your project submission. Please be mindful of GDPR issues when doing so. You will be required to complete a short review of your customer and your developer as part of the process. You may also be scheduled for a detailed demonstration and discussion of your game.

Include in your documentation the version of Unity that you used for development.

**Deliverables**

**Game Implementation** as outlined above.

Marking Rubric for Implementation

| 0 - 35% | 35 – 75% | 75 – 100% |
|---|---|---|
| A selection of the basic game requirements has been implemented to a basic level | Game implementation requirements have been implemented to an acceptable level | Game implementation requirements have been implemented to an advanced level |
| Game Implementation will achieve minimum functionality | Game implementation will achieve expected functionality | Game implementation will not contain syntax and/or run-time errors |
| Game Implementation may contain some syntax and/or run-time errors | Game implementation will not contain syntax and/or run-time errors | Game implementation code will be well commented and/or formatted |
| Game implementation code is poorly documented and/or formatted | Game implementation code will be reasonably commented and/or formatted | Game will be thoroughly tested |
| Game implementation will contain basic features; application will not be tested properly | Game will be tested to a reasonable degree | Game implementation of code will follow coding conventions demonstrating use of appropriate patterns |
| Game implementation code will not follow applicable coding conventions | Game implementation code will follow appropriate coding conventions | Game implementation adds significantly in a positive way to the design submitted |

**Developer Diary**

The developer diary is your account of development. It is best if you add to this on a regular basis as you develop and reach decisions in consultation with your designer. If you wish to change the design, then you need to have it documented here.

The diary contains the thought process in the development of the game and the rationale for decisions made with the designer of the game. It contains details of any patterns that you used in the development of the game. It should also contain references to sources for solutions to problems you may have had during the development process. It is not a list of items completed on a particular day.

You also need to include the **Test Plan** for the game here. This is a description of the type and scope of the testing carried out the game. You can read more about test plans at the link:

http://softwaretestingfundamentals.com/test-plan/

Marking Rubric for Developer Diary

| 0 – 35 | 35 – 75 | 75 – 100 |
|---|---|---|
| Poor use of grammar, structure and content with little evidence of knowledge of the problem domain | Good use of grammar, structure and content with satisfactory evidence of knowledge of problem domain | Written and structured to a high standard with content that exhibits expert knowledge of the problem domain |
| Limited documentation of decisions and discussions leading to the final implementation of the game | Acceptable documentation of the decisions and discussions taken during the development of the game | Extensive documentation of the decisions and discussions taken during the development of the game |
| Limited test plan presented | Acceptable test plan presented to support the implementation of the game | Thorough test plan presented to support the implementation of the game |
| Limited evidence of critical analysis and conclusions | Satisfactory evidence of critical analysis and conclusions | Extensive evidence of critical analysis and conclusions |

**Breakdown of module marks for each component**

Game Design Document: 20% of the module mark

Game Implementation: 40% of the module mark

Developer Diary: 20% of the module mark

In Class Assessment: 20% of the module mark