CODING TASK II: GAME COMPONENT

Version 1.0
BSc Computing for Games

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Introduction

In this assignment, you are required to propose and write a game component for an existing game. You will then present a demonstration of your work.

Games are often comprised of a rich architecture incorporating many components. As such, coding tasks in the games industry may require you to develop bespoke code on a particular aspect of a game. Examples include: levels; items; character behaviours; physical behaviours; an AI director; and so on. Through this project, you will become acquainted with the different techniques and methods that help you to work effectively to write such components; thereby, gaining knowledge of coding and its various aspects.

"Engage with the community and support each other. This is important. Upload your code to GitHub and receive feedback from experienced peers. Review your peers' work yourself and really consider what 'quality' actually means. Debate, argue, and question others about it— an open and sustained discourse is an excellent way for all to learn!"

This assignment is formed of several parts:

(a) **Write** a brief proposal that will:
   i. **identify** a component of game architecture that needs creating;
   ii. **describe** what will be created, with reference to requirements;
   iii. and then **outline how** it will be integrated into an existing game project.

(b) **Write** a draft computer program that will:
   i. **implement** the game component;
   ii. and **address** the requirements highlighted in the proposal;

(c) **Write** a final computer program that will:
   i. **revise** any issues raised by your tutor or your peers;

(d) **Present** an executable version of your final program.

Note: All submissions must be clearly distinctive. Members of the same development group must **not** target the same component.

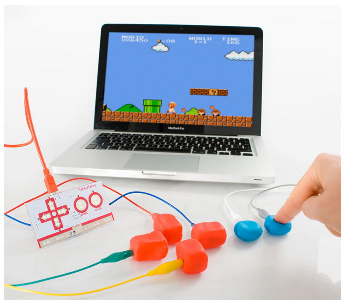
Part A

Part A consists of a **single formative submission**. This work is **individual** and will be assessed on a **threshold** basis. The following criteria are used to determine a pass or fail:

(a) Submission is timely;

(b) Proposed game component is relevant and feasible to implement;

(c) Coding task is non-trivial.


The *MaKey MaKey* allows a multitude of materials to be used to create videogame controllers.

To complete Part A, show your work to your tutor during an individual tutorial. This will be signed-off.

You will receive immediate informal feedback.

Part B

Part B is a **single formative submission**. This work is **individual** and will be assessed on a **threshold** basis. The following criteria are used to determine a pass or fail:

(a) Submission is timely;

(b) Enough work is available to conduct a meaningful review;

(c) A broadly appropriate review of a peer's work is submitted.

To complete Part B, attend the scheduled code review session. Ensure that the source code and related assets are pushed to GitHub and a pull request is made prior to this session.

You will receive peer feedback within 3 working days.

Part C

Part C is a **single summative submission**. This work is **individual** and will be assessed on a **criterion-referenced** basis. The following criteria are used to allocate marks:

"Remember, learning to program can take a surprising amount of time & effort — students may get there at different rates, but all students who put in the time & effort get there eventually. Making good use of (reflection and deliberate practice) are an essential part of this process."

— Professor Quintin Cutts

(a) Appropriateness of Requirements;

(b) Appropriateness of Design;

(c) Functional Coherence of Executable Solution;

(d) Maintainability of Source Code;

(e) Sophistication of Source Code;

(f) Professional Practice;

To complete Part C, upload the source code and related assets to the LearningSpace. Please note, the LearningSpace will only accept a single `.zip` file (the `.rar` format must not be used).

You will receive formal feedback three weeks after the final deadline.

Part D

Part D is not grade-bearing; however, submission is mandatory. Failure to submit will result in a grade capped at 40% (D-).

To complete Part D, attend the scheduled demo session. Ensure that an executable demo of your work has been pushed into GitHub prior to this session. You will receive informal feedback immediately.

Rhythm games such as *Guitar Hero* and *Rock Band* are excellent examples of games which make use of unique input devices to enhance gameplay.

Additional Guidance

Fork the GitHub repository at the following URL:

`https://github.com/Falmouth-Games-Academy/comp110-coding-task-2`

Write your proposal in the `readme.md` file. Also use this repository for any other digital assets you create (e.g. diagrams and pseudocode), checking them in regularly as you work on your projects. Such assets should be embedded directly in the `readme.md` file.

Do not begin programming the game component until your tutor has reviewed your proposal. It is important that the main requirements are firmly specified in order to avoid over-scoping the task or otherwise falling into a related pitfall.

You may use the IDE and programming language of your choice. Remember to commit frequently and push your source code and related assets to the GitHub repository.

Poor planning and poor time management can have a significant impact on this assignment. It is very easy to underestimate how much work is involved in first learning programming concepts and then actually applying them in order to write a computer program. As some of you may have already discovered, programming is quite unlike other subjects in that it cannot be "crammed". Sustain a steady pace across the duration of the course. Do a little programming every day, if you can!

"The first 90 percent of the code accounts for the first 90 percent of the development time.

"The remaining 10 percent of the code accounts for the other 90 percent of the development time."

— Tom Cargill

"Hofstadter's Law:

"It always takes longer than you expect, even when you take into account Hofstadter's Law."

— Douglas Hofstadter

FAQ

- **What is the deadline for this assignment?**
  Falmouth University policy states that deadlines must only be specified on LearningSpace. Please examine the assignment area where you located this document.
- **When should I start this assignment?**
  Now.
- **What should I do to seek help?**
  You can email your tutor for informal clarifications. If you have discovered an issue with the brief itself, the source files are available at: `https://github.com/Falmouth-Games-Academy/bsc-assignment-briefs`. Please make a pull request and comment accordingly.

Additional Resources

- To be advised by your tutor after submission of the proposal.

The *Dreamcast Fishing Controller*, released as a peripheral for the game *Sega Bass Fishing*. Even peripherals which appeal to only a small audience can enjoy moderate commercial success.

Marking Rubric

Criterion	Weight	F (0 – 39)	D (40 – 49)	C (50 – 59)	B (60 – 69)	A (70 – 79)	A* (80 – 100)
Satisfactory Preparation of Proposal	5%	The proposal is inappropriate and/or is late.					The proposal has been signed-off by your tutor by the deadline.
Satisfactory Completion of Peer-Review Tasks	5%	No work was submitted for peer-review and/or no peer-review has been submitted and/or either is late.					Work submitted for peer-review on time and reviews of peers' work submitted on time.
Appropriateness of Requirements	5%	No user stories are provided.	Few user stories are appropriately formatted, distinguishable, and easily measured.	Some user stories are appropriately formatted, distinguishable, and easily measured.	Most user stories are appropriately formatted, distinguishable, and easily measured. The scope and relevance of all requirements is appropriate.	Nearly all user stories are appropriately formatted, distinguishable, and easily measured. The scope and relevance of all requirements is appropriate.	All user stories are appropriately formatted, distinguishable, and easily measured. The scope and relevance of all requirements is appropriate.
Appropriateness of Design	10%	No design is presented.	The design is very flawed and/or very poorly described.	The design is flawed and/or poorly described.	The design is acceptable and adequately described.	The design is sound and well described.	The design is exceptional and very well described.
Functional Coherence	15%	The component is non-functional.	Few requirements have been met. There are many obvious bugs.	Some requirements have been met. There are some obvious bugs.	Many requirements have been met. There are few obvious bugs.	The game component is fit-for-purpose. There are almost no obvious bugs.	The game component is fit-for-purpose. There are no obvious bugs.
Sophistication	25%	No insight into the appropriate use of programming constructs is evident from the source code.	Little insight into the appropriate use of programming constructs is evident from the source code.	Some insight into the appropriate use of programming constructs is evident from the source code.	Much insight into the appropriate use of programming constructs is evident from the source code. The program is structured appropriately.	Significant insight into the appropriate use of programming constructs is evident from the source code. The program is structured effectively, such that there is high cohesion and low coupling.	Exemplary insight into the appropriate use of programming constructs is evident from the source code. The program is structured very effectively, such that there is very high cohesion and very low coupling.
Maintainability	25%	The source code cannot be maintained.	There are many problems which affect the maintainability of the source code.	There are some problems which affect the maintainability of the source code. Some clear and appropriate comments are present.	There are few problems which affect the maintainability of the source code. Many clear and appropriate comments are present.	There are almost no problems which affect the maintainability of the source code. Source code is well commented. Doc strings (or equivalent) are provided.	There are no problems which affect the maintainability of the source code. Source code is exceptionally well commented. Appropriate doc strings (or equivalent) are provided.
Professional Practice	10%	GitHub has not been used.	Source code and assets have been checked into the repository only just before a deadline.	Source code and assets have seldom been checked into the repository.	Source code and assets have regularly been checked into the repository. An attempt has been made to document the project using `readme.md` and `changelog.md`.	Source code and assets have regularly been checked into the repository. The first check-in to the repository is in the first half of the semester. The project is appropriately documented using `readme.md` and `changelog.md`. There is evidence of some engagement with the Falmouth Games Academy community (e.g. reviewing peers' pull requests).	Source code and assets have regularly been checked into the repository. The first check-in to the repository is in the first quarter of the semester. The project is exemplary documented using `readme.md` and `changelog.md`. There is evidence of much engagement with the Falmouth Games Academy community (e.g. reviewing peers' pull requests).