ADVANCED PROGRAMMING - ASSIGNMENT 2

Version 1.0
BA Game Development
GAM250

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Introduction

In this assignment, you will work as an individual to develop a game or a reusable component that can be used in a game. This will implementation of the topic you selected for assignment 1. This can be related to your group project or something you want to explore for your own portfolio.

This assignment is formed of two parts:

(A) **Implement**, a small prototype that shows progress on your topic:
  i. **demonstrate** the core idea behind your project
  ii. **contains** some evidence of good software design

(B) **Implement** a final version of your application:
  i. **Evidence** of optimisation
  ii. **Demonstrate** your academic integrity;
  iii. **Show** your programming knowledge **and** communication skills.

Any code of your own that you haven't looked at for six or more months might as well have been written by someone else.

— Eagleson's Law

Assignment Setup

Fork the GitHub repository at:

`https://github.com/Falmouth-Games-Academy/gam250`

Use the existing directory structure and, as required, extend this structure with sub-directories. Ensure that you maintain the `readme.md` file.

Setup your Unity Project for using version control

Modify the `.gitignore` to the defaults for **Unity**. Please, also ensure that you add Git LFS to your project `https://git-lfs.github.com/` and you add editor-specific files and folders to `.gitignore`.

Part A

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

(a) Enough work is available to hold a meaningful discussion;
(b) Clear evidence of programming knowledge and communication skills;
(c) No breaches of academic integrity.

To complete A, zip your project and submit it the learning space by **Friday of week 7**. You will receive **immediate informal** feedback from your **tutor**.

Part B

Part B is the final submission of the code base to the learning space, this should be a zipped version of your GitHub repository

(a) Enough work is available to hold a meaningful discussion;
(b) Clear evidence of programming knowledge and communication skills;
(c) No breaches of academic integrity.

To complete Part B, zip your project and submit it the learning space by **deadline of the assignment**. You will receive **immediate informal** feedback from your **tutor**.

Additional Guidance

The goal of this module is to build on your experience programming from 1st year and develop your skills in order to create performant and reusable software. You should constantly profile your application and then optimise the most critical path in order to make your application have good performance on most devices. In terms of reusability, you should be able to reuse the systems created in this coursework in any other Unity project including your 2nd and 3rd year group projects.

FAQ

- **What is the deadline for this assignment?**
  Falmouth University policy states that deadlines must only be specified on the MyFalmouth system.
- **What should I do to seek help?**
  You can email your tutor for informal clarifications. For informal feedback, make a pull request on GitHub.
- **Is this a mistake?**
  If you have discovered an issue with the brief itself, the source files are available at:
  `https://github.com/Falmouth-Games-Academy/ba-assignment-briefs`.
  Please raise an issue and comment accordingly.

Additional Resources

- Unity Profiler Overview - `https://docs.unity3d.com/Manual/Profiler.html`
- Unity Europe 2017 - Performance optimization for beginners - `https://www.youtube.com/watch?v=1e5WY2qf600`
- Game Programming Patterns - `http://gameprogrammingpatterns.com/contents.html`

Marking Rubric

Criterion	Weight	Refer for Resubmission	Basic Competency	Basic Proficiency	Novice Competency	Novice Proficiency	Professional Competency
Basic Competency Threshold	40%	At least one part is missing or is unsatisfactory. There is little or no evidence of an iterative development and no improvement over time in regards to the quality of the design	Submission is timely. Enough work is available to hold a meaningful discussion. Clear evidence of a 'reasonable' iterative development process Clear evidence of programming knowledge and communication skills. Clear evidence of reflection on own performance and contribution. No breaches of academic integrity.				
Design of the solution	15%	No evidence of upfront design	The correspondence between design and implementation is tenuous.	The design somewhat corresponds to the final implementation.	The design corresponds to the final implementation.	The design clearly corresponds to the implementation.	The design clearly and comprehensively corresponds to the implementation.
Innovation and creative flair	10%	No evidence of innovation and/or creativity.	Some evidence of emerging innovation and/or creativity. The solution is purely derivative of existing products. There is no evidence of divergent thinking.	Little evidence of emerging innovation and/or creativity. The solution is mostly derivative, with some attempts at innovation. There is evidence of an attempt at divergent thinking.	Much evidence of emerging innovation and/or creativity. The solution is an interesting and somewhat innovative product. There is some evidence of divergent thinking.	Considerable evidence of mastery of innovative and creative practice. The solution is a novel and innovative product. There is much evidence of divergent thinking.	Significant evidence of mastery of innovative and creative practice. The solution is a unique and innovative product. There is significant evidence of divergent thinking.
Profiling	15%	No profiling is carried out	Some basic profiling carried out There is no evidence that profiling results have been used to optimise the game	Some basic profiling and optimisation carried out	Profiling and optimisation carried out throughout the project	Considerable profiling and optimisation carried out throughout the project	Significant profiling and optimisation carried out throughout the project
Sophisticationn	15%	The solution lacks even a basic level of sophistication.	The solution evidences some sophistication	The solution evidences little sophistication	The solution evidences much sophistication	The solution evidences considerable sophistication	The solution evidences significant sophistication
Use of Version Control	5%	GitHub has not been used.	Source code has rarely been checked into GitHub.	Source code has been checked into GitHub at least once per week. Commit messages are present. There is evidence of engagement with peers (e.g. code review).	Source code has been checked into GitHub several times per week. Commit messages are clear, concise and relevant. There is evidence of somewhat meaningful engagement with peers (e.g. code review).	Source code has been checked into GitHub several times per week. Commit messages are clear, concise and relevant. There is evidence of meaningful engagement with peers (e.g. code review).	Source code has been checked into GitHub several times per week. Commit messages are clear, concise and relevant. There is evidence of effective engagement with peers (e.g. code review).