G54GAM Coursework 2: Prototype Game and Design Documentation

Summary

This coursework is worth 40% of the overall module assessment and is to be **conducted individually.**

> Design and implement a prototype computer game using the Unreal Engine, demonstrating an appropriate progression of challenges, documenting the design of both it and the preceding lab exercises.

Your game and documentation should be submitted no later than:

> **3pm Tuesday 8th May 2018**

Submission should be made electronically via moodle (http://moodle.nottingham.ac.uk). Standard penalties of 5% per working day will be applied to late submissions.

Your game and documentation should be submitted as a .zip or .tar.gz file containing an Unreal project folder including all relevant blueprints, levels, assets and related files, and a .doc, .docx or .pdf file containing your report. Do not submit RAR files.

There is a hard limit of 250MB for file uploads to moodle that is outside of my control, and it is likely that your project will legitimately exceed 250MB. Detailed submission instructions to work around this will follow nearer the time.

Requirements

1 Game Prototype

You should design a game within a genre of your choice, with challenges appropriate to that genre. Your game should demonstrate the practical implementation of a difficulty curve appropriate to the implemented challenges, ensuring that there is an appropriate introduction to the mechanics of the challenge, followed by several challenges of increasing difficulty. The core mechanic and style can be chosen as you see fit.

You should submit a complete Unreal Engine project including all associated assets and project files. There is no requirement to use a specific sub-version of Unreal, nor target a particular platform or operating system.

The game must be your own work, including the game design and implementation. Any exceptions to this must be clearly identified and acknowledged in either in the readme file or inline as comments:

- You may make use of pre-existing (e.g. found) images, sprites, models and other media, either via the Unreal marketplace or online, but these must be clearly identified and acknowledged in your report, and they must be available under a license that allows their reuse in this context.

- You may make use of existing code libraries, blueprint samples and fragments within your game but these must be clearly identified and acknowledged within your project.

2 Design Documentation

Your documentation should consist of three sections, as follows. There is no word limit, however there is a page limit of 15 pages.

Lab Exercise Design Portfolio

For each of the lab exercise games, provide brief documentation that describes your solution, in particular how you approached the exercises in each one, and what you felt was particularly successful or unsuccessful. Include screenshots and verbose description as appropriate. For example, lab exercise 2 called for a simple linear level consisting of different platformer challenges – here a screenshot of the entire level would be appropriate, whereas the various puzzles created lab exercise 4 could be individually pictured.

As a guide, you should aim for around 1 page of description per lab exercise.

Prototype Design and Specification

Detail the features and functions of your final prototype game – what goes into the game and what it does. This is not a technical specification, but it is a "bible" that could be given to a developer who could then use it to produce a technical specification or a working prototype. Diagrams and bullet points should be used rather than flowing prose to make the specification clear and readable.

- Core game play
    - Objects, rules, procedures and resources, game play elements
        - What are the core game objects?
        - Weapons, switches, traps, items, power-ups
- Game flow
    - The progression of challenge
        - What is the difficulty curve?
        - What are the skill gates?
- Characters
    - Controlled by the players or AI
        - How do they move?
        - What are their statistics?
- Physics and statistics
    - Movement and speed, collisions and reactions
- AI (if applicable)
    - Desired behavior
- Level requirements
    - Level relationships

        - What are the different levels, rooms or areas, and how are they linked?
    - Target difficulty
        - Do you have easy, medium and hard levels?
    - Asset revelation
        - When are the game's assets revealed to the player?
        - Bosses and enemy types, weapons, power-ups, objectives, challenges

Prototype Walkthrough

A set of instructions or a transcript describing one way of successfully completing your prototype. NB – this is not just a restatement of the game design in the abstract, instead describe the player's experience, that is, an instance of playing through the game, in a way that could be used for a walkthrough or tutorial for the game.

Hints

Your game should allow the player to play towards a clearly defined objective, comprising of representative challenges, for example, exploration, pattern recognition, knowledge etc. The game should be appropriately balanced, and demonstrate an appreciation of the concept of progression and increasing difficulty and challenge.

The emphasis of this coursework is about thinking about structured game play, and demonstrating your understanding of the course material, so try not to get too bogged down designing assets and sprites - you'll get more marks for a simple looking game that has a well thought out game design than for an aesthetically beautiful game that is shallow.

You're encouraged to use the simple games from the lab sessions as a starting point, however it is expected that this is then developed into a more sophisticated game by adding multiple further challenges and progression. Coming up with a unique form of game play is very difficult, so you can also draw inspiration from existing games. However, you should aim that your game is suitably unique, whether this is in terms of core mechanics, premise, challenges or aesthetic.

NB – games that are simple derivations or clones of online Unreal Engine tutorials are not acceptable, and will be heavily penalized. Similarly, it is not acceptable to submit just one of the lab session exercises without modification. You are being assessed on your understanding of the course content, and you should specifically attempt to introduce substantial higher level game design concepts, such as particular challenges, difficulties and balanced relationships into your game that demonstrate this.

Consider the formal and dramatic elements of game play:

- What is the premise of the game?
- Is there a narrative?
- What is the core mechanic?
- What are the goals and objectives, rules, resources, conflict and challenges?

NB – You are required to submit a prototype of a game, not a complete game. Again, remember that you are being assessed on your understanding of the course content. It is better to submit a prototype that demonstrates a few points well in the abstract, than attempting to construct a full game. No additional marks will be given to large games that do not demonstrate specific additional game design elements (e.g. multiple similar levels that do not change in difficulty, or excessive use of 3rd party assets without justification).

Assessment Criteria

	Marks Available
Quality of the implementation	
Choice and implementation of the core mechanic	10
Choice and implementation of challenges	20
Choice and implementation of difficulty or progression mechanic	20
Construction style	
The game project is easy to understand, with comments, correct formatting, meaningful blueprint, function and variable names	5
Generalisation and appropriate use of Unreal (Blueprints are reusable, variables likely to require editing are exposed)	5
Documentation	
Quality of lab exercise portfolio	25
Quality of prototype design documentation	15
Total	100

Each element of your coursework will be assessed against the standard criteria[1]

The following areas will be taken into account for each part of the assessment:

- Demonstrating knowledge of the area
- Quality of the concept, including appropriateness and novelty
- Quality of the technological design, including appropriate use of software design concepts, and appropriate good coding practice (abstraction, commenting, naming)
- Quality of the realization, including how well it works and elaborations over and above the basic requirements
- Including all of the above aspects, clarity of structure, quality of argument / evidence, and insight / novelty

[1] https://workspace.nottingham.ac.uk/display/CompSci/Marking+Criteria

Plagiarism

Plagiarism or other academic offenses will be dealt with using the standard University procedures[2] , and may result in a mark of zero for the entire assessment, module or year. **N.B. Use of third party assets (images, example code, libraries etc) MUST be credited or referenced, and you MUST be able to demonstrate that they are available under a license that allows their reuse.**

Making significant use of tutorials AND referencing it will merely result in a lower mark. Failing to attribute to the original source will result in a mark of zero.

Copying code from other students, from previous students, from any other source, soliciting code or attempting to solicit code from online sources and submitting it as your own is plagiarism and will be penalized as such – potentially resulting in failure of coursework, module or degree.

[2] https://www.nottingham.ac.uk/academicservices/qualitymanual/assessmentandawards/academic-misconduct.aspx