COMP4002/GAM Coursework: Prototype Game

Summary

This coursework is worth 50% of the overall module assessment and is to be **conducted individually.**

> Design and implement a prototypical video game using Unity that demonstrates an appropriate progression of challenges, with a premise that speaks to one of the provided themes. Provide basic documentation and create a short video trailer that gives an overview of its design. Play and write micro-reviews for 3 games.

Your game and documentation should be submitted no later than:

> **3pm Tuesday 7th of May 2024**

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 video should be submitted as a .zip or .tar.gz file containing a Unity project folder including all relevant scripts, assets and related files, a .docx or .pdf file containing your documentation, and your video in .mp4 or .mov format. Pay close attention to the document and files that you are required to submit.

There is a hard limit of 250MB for individual 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 be provided on the Moodle page.

Requirements

1 Game Context, Prototype and Theme

This coursework is very loosely inspired by the idea of a *game jam*, a time-limited event where participants try to make game from scratch, at the end of which games are presented and played by the participants. Game jams frequently have a *theme*, which all games developed during the jam are expected to adhere to, with the aim that placing constraints on participants then encourages creativity.

Games For Change (G4C)[1] is a non-profit organisation that promotes using games and serious games to promote societal change. Inspired by their student challenge, your game **should have a premise** that speaks to one of the UN sustainable development goals[2], for example:

- **SDG2 Zero Hunger.** End hunger, achieve food security and improved nutrition and promote sustainable agriculture**.**

[1] https://www.gamesforchange.org/
[2] https://sdgs.un.org/

- **SDG3 Good Health and Well-being.** Ensure healthy lives and promote well-being for all at all ages.

- **SDG13 Climate Action.** Take urgent action to combat climate change and its impacts.

- **SDG14&15 Life Below Water and Life On Land.** Conserve and sustainably use the oceans, seas and marine resources for sustainable development. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

For example, maybe your player has to defend a farm from anthropogenic environmental threats, escape from plastic monsters in the ocean, or defeat conspiracy theorists with your environmental policy weapons. Or maybe you want to turn this on its head, and your game involves maximising profit from your burger restaurant?

You should design and implement a game within a genre of your choice, with challenges appropriate to that genre. Your game **must** 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, and **five applied challenges of increasing difficulty**.

Your game **must** be implemented in Unity 2022 or later. There is no requirement to use a specific sub-version of Unity beyond this, although it is recommended to use one of the long-term support (LTS) versions. Any exceptions must be agreed in advance.

You **must** submit a complete Unity project including all associated assets, source code and project files, that can be added and opened via the Unity hub, and that when opened and "played" starts from where the player might expect the game to start on first launch.

You **must** submit **a standalone executable** for either Windows or OSX. Further details can be found in lab 07.

https://docs.unity3d.com/Manual/PublishingBuilds.html

The game **must be your own work**, including the game design and implementation. Any exceptions to this must be clearly identified and acknowledged as set out in the following sections. The majority of your game must be created explicitly for this coursework. You are not permitted to draw significantly on previous academic work without prior agreement.

- You may make use of pre-existing (e.g. found) images, textures, sprites, models and other media, either via the Unity asset store or online, but these **must** be available under a license that allows their reuse in this context.

- You may make use of existing, packages, code libraries and script assets within your game, but these **must** be clearly identified, referenced acknowledged within your project.

- You may (and it is expected that most will) draw upon the lab exercises, and these do not need to be acknowledged.

2 Supporting Documentation

Your documentation should be completed using the pro-forma provided on Moodle and be included with your submission, which includes the following five sections.

There are no formatting or length requirements aside from those stated.

Asset Manifest

A file listing external or third-party assets that you have used as part of your prototype, including images, textures, sprites, models and scripts – i.e. everything that you have not made yourself. This list must include direct links to **official sources** where each of the assets used can be retrieved.

Important: if you do not include this element then your coursework will not be marked. If this file is inaccurate, contains fabricated or inaccurate links, is incomplete, or indicates that commercial content has been misused, then your coursework will be investigated as potentially having engaged in academic misconduct[3].

Prototype Trailer

You must include a short video that highlights the key features of your game. The video must be no longer than 1 minute.

You should capture footage from each game using a screen capture tool. The video should be encoded and submitted as H264 video in an .MP4 wrapper, or .MOV as generated by Quicktime, or alternatively you may host the video on an online video platform and submit a link.

Prototype Premise

A brief statement of the premise of the game.

Prototype Instructions

A set of instructions or a walkthrough 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. This should explain what to do and when, and the controls for playing the game.

[3] https://www.nottingham.ac.uk/studyingeffectively/studying/integrity/index.aspx

Micro-Reviews

You will be assigned the names of 5 other students enrolled on the module. You should arrange to play the (complete or near-complete) games of **3** of these students, ideally during one of the timetabled lab sessions, and write a brief *micro-review* of their games. Each review must be **no longer than 100 words**.

You might find it useful to consider Denisova's CORGIS scale for reflecting on the challenge in the games in order to comment on your experience of the game.

- How was playing the game stimulating?
- How were you challenged while playing the game?

Hints

Your game should allow the player to play towards a clearly defined goal (what is winning?), comprising of at least five situations that provide representative challenges. You should identify the challenge archetype(s) for your game then modify this systematically to create the content for your game. The game elements should be appropriately balanced and demonstrate an appreciation of the concept of progression and increasing difficulty and challenge.

A rule of thumb is that your game should take between **5-10** minutes to play to completion.

Note on content – the emphasis of this coursework is about thinking about structured game play, and demonstrating your understanding of the course material, so it is a mistake to start with a large number of assets rather than simple primitives and grey-boxing – a simple looking game that has a well thought out game design will be much more successful than an aesthetically beautiful game that fails to demonstrate solid principles.

Note on aspirations – you're encouraged to use the simple games from the lab sessions as a starting point – **it is a risky strategy to attempt to implement a core game mechanic from scratch that you have yet to explore in Unity** – however it is expected that these are then developed into a much 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 mechanics, premise, challenges or aesthetic.

Note on tutorials – games that are simple derivations or clones of online Unity tutorials are not acceptable and are unlikely to meet the assessment criteria below. 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 as such you should specifically attempt to introduce higher level game design concepts, such as particular sequences of applied challenges, difficulties and balanced relationships into your game that demonstrate this.

Note on scale – you are required to submit a prototype of a game, or a "vertical slice", 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, than

attempting to construct a full game. Additional marks will not necessarily be awarded 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 assets without justification).

As a starting point you should consider the formal and dramatic elements of game play:

- Players
    - It is likely that your game is single-player vs the system
- What are the goals and objectives, and what provides conflict against the player?
    - What is the player trying to achieve, and what is stopping them from doing that?
- What are the rules and procedures?
- Are there resources? What are the sinks and source for these, and why are they useful?
- What are the boundaries?
    - Do these arise from the system or the theme?
- What are the possible outcomes of the game?
- What are the challenges and how do they develop?
    - What are the different situations? Are they levels, rooms or areas, how are they linked?
    - Do you have introductory vs more difficult challenges? How have you quantified the difference between these?

Assessment Criteria

	Marks Available
Design and Implementation	
Design and implementation of the mechanics and explicit interactions	20
Design and implementation of challenges	20
Design and implementation of difficulty or progression mechanic	20
Unity project	
Generalisation and appropriate use of Unity (prefabs are reusable, variables likely to require editing are parameterised, reflection on components)	20
Documentation	
Quality of prototype trailer	10
Quality of your reviews (of others)	10
Total	100

Each element of your coursework will be assessed against these criteria:

Exceptional (90-100%)	The game should exhibit all the characteristics of an Excellent grade. Additionally, the game should be essentially without fault and of the highest possible quality, exhibiting a *substantial original component*.
Outstanding (80-89%)	The game should exhibit all the characteristics of an Excellent grade. Additionally the game should *exhibit independent thought and originality*. Any short-comings should be no more than incidental.
Excellent (70-79%)	The game should display a complete and thorough understanding of the conceptual and practical issues surrounding the topic. The game should be well structured with a clear and consistent design and the quality of the design should be excellent. The implementation should be comprehensive and rigorous. The game should be complete in all respects and exhibit very high quality. There should be *evidence of reading beyond the core lecture material.*
Good (60-69%)	The game should show a good understanding of the conceptual and practical issues surrounding the topic. The design should be clearly structured. The quality of the design should be good. The implementation should be competently conducted using recognised and appropriate methods. The implementation should be complete and usable and exhibit good levels of quality.
Average (50-59%)	The game would be expected to display a fair understanding of the key conceptual and practical issues, although weakness may be present in some areas. The game should have a basic design, and there should be some coherence to the elements included. The implementation should be adequate to illustrate principles of the design; it may display weakness in areas not central to the game.
Adequate (40-49%)	The game would display an incomplete understanding of the central issues relating to the topic. The game would lack a clear structure and the quality of the design would be below average. The implementation would be poorly designed, incomplete, poorly commented, and difficult to understand; it would exhibit poor levels of quality.
Poor (below 40%)	The game would display a very poor understanding of the area; there would be no clear structure and the design may be weak or incomplete. The implementation would be limited in capability, and difficult to use.

Assets, and Academic Misconduct

If you feel that you must include commercial assets in your game for it to be successful, then it is likely that you are misunderstanding the fundamental exercise of this coursework, and I would encourage you to discuss it with me. There is **absolutely no requirement or expectation** that any students make any kind of financial investment for this coursework, and indeed this is unlikely to lead to a "better" mark.

Various free assets can be found in the Unity asset store, or from Kenney:

- https://assetstore.unity.com/
- https://kenney.nl/assets

Academic offenses (plagiarism, contract cheating, use of generative AI) will be dealt with using the standard University procedures[4], and may result in a mark of zero for the entire assessment, module or year. Copyright infringement will be treated as an academic offense.

N.B. Use of third-party assets (images, example code, libraries etc.) must be credited or referenced clearly in the asset manifest and in-line in the code where appropriate, and you must demonstrate that they are available under a license that allows their reuse. Use of paid-for assets will be queried.

Making significant use of tutorials AND referencing the original source will result in a lower mark as proportionate for your contribution. FAILING to attribute the original source is academic misconduct.

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 academic misconduct and will be penalized as such – potentially resulting in failure of coursework, module or degree.

[4] https://www.nottingham.ac.uk/qualitymanual/assessment-awards-and-deg-classification/pol-academic-misconduct.aspx