|  |
| --- |
| MHI625659-21-A |
| Coursework |
| Games Programming 3 |

|  |
| --- |
| Young, Bryan (bryan.young@gcu.ac.uk) |

*Session 2021 - 2022*

***Plagiarism***

*Attention is drawn to the University regulations on plagiarism. Whilst discussion of the coursework between students is encouraged, the actual work has to be undertaken individually. Collusion may result in a zero mark being recorded for the coursework for all concerned and may result in further action being taken.*

# Scenario

This coursework will test your ability to develop a 3D game while implementing more advanced games programming concepts.

# Specification

The following **minimum** specification should be adhered to, a game that contains:

* *Three different* models, including at least one *ARRAY* of models.
* A player that interacts with the scene.
* *One* camera with movement, that can track a model as it moves.
* The models should be *skinned* using *appropriate* textures for the game.
* The game must make use of *one imported vertex* and *one imported fragment* shader.
* The game must include a skybox.
* The game must contain audio.
* The game must contain collision detection.

## Extension

The above specification constitutes the core of the game. Extra marks (worth up to **60%**) can be gained by implementing the suggested extension work contained within the Lab materials:

* Advanced Cameras
* Timestep management system
* Game Object abstraction
* Component based architecture
* Enhanced model movement and interactions
* Performance optimisation
* Deferred rendering
* Extension of your choice

## Deliverables

The following should be submitted:

* A cover page clearly stating: Name, Matriculation number, Course and the following disclaimer:

*I confirm that the code contained in this file (other than that provided or authorised) is all my own work and has not been submitted elsewhere in fulfilment of this or any other award*.

*Signature*.

* Documentation:
  + An explanation of the code used to generate the **EXTENSION MATERIAL** (**2000 words limit + appendix**). This section should be written using a coherent paragraph structure and not bullet points. This should must be a structured document as follows:
    - Front cover
    - Contents page
    - Description of code
      * Numbered Sections
      * Fully justified text format
      * Labelled tables & figures
      * Consistent formatting and labelling
      * Page numbers

## Submission

## Final Submission

Submission of this coursework should be made electronically via GCULearn. Upload your document to GCULearn with a link to your application stored using **GITHUB/DROPBOX** no later than **17:00 on 14/01/22**. Your submission **must also include** a 30 second video of the application running which should be inclucded in your application folder.

Late submissions will not be tolerated with out a valid and documented reason.

## Marking Scheme

|  |  |
| --- | --- |
|  | Mark |
| Code: Base application | **Up to** |
| Base Game  Appropriate functionality – Game Audio, collision detection, skybox. | 10 |
| Models  Appropriate functionality – Model class that loads into memory and operates as a component of an Entity | 5 |
| Cohesion  Appropriate functionality – Apply the principles of Cohesion and Abstraction to the “mainGame” functions. | 5 |
| Cameras  Appropriate functionality may include – Camera that can track a game object while **both** the camera and the game objects are moving. | 5 |
| Memory Management  Appropriate functionality – Passing components by reference, stack allocated arrays, code optimisation. | 5 |
| Frame Buffer Object  Appropriate functionality may include – The game contains and can render from a Frame Buffer Object | 5 |
| Time Stamps  Appropriate functionality may include – Appropriate components must update using DeltaTime. | 5 |
| **Sub Total** | **40** |
| Extension Material & Documentation |  |
| Extension Material | 40 |
| Code Explanation | 20 |
| **Sub Total** | **60** |
| **Total** | **100** |

# Plagiarism

Attention is drawn to the university regulations on plagiarism. Whilst discussion of the coursework between students is encouraged, the actual work has to be undertaken individually. Collusion may result in a zero mark being recorded for the coursework for all concerned and may result in further action being taken.

University regulations, codes & policies: <http://www.gcal.ac.uk/student/about/regulations/index.html>

Plagiarism and cheating: <http://www.gcal.ac.uk/student/coursework/regulations/plagiarism.html>