School of Arts, Media and Computer Games

Session 2019/20

Module Code: **CMP105**

Module Title: **Games Programming**

Module Deliverer: **Dr Paul Robertson**

Unit of Reassessment: **Unit 1 of the module exceptional reassessment – 100%**

Submission date: **Monday 31st August 2020**

Suggested Feedback Return Date: **14th September 2020**

Re-Assessment overview

The resubmission coursework will use the same repo as the main submission. You can further develop your original game or rewind the repo and start afresh.

Starter Application

A starter application and free private repo for use with this coursework are available at this link: https://classroom.github.com/a/_CeHYbyS . Select your student number from the list and login with your GitHub account. This will link the repo with your GitHub account and provide you with the starter application. Make sure you clone (but **do not** fork) the repo to access the starter application for your coursework. This repo is **REQUIRED** as it will be used for submitting the project source code as part of the assessment. If you need a reminder on working with Git, use the guide provided in the Lab 0 lab sheet. This is the same repo used for the original submission.

Games Application

You must design and develop a sprite-based computer game application. The application should demonstrate and showcase your understanding of games programming. The games application must use C++, SFML and the framework provided, with no use of additional libraries or game engines. The games application must be more complex than a simple pong clone and **must** run on the lab computers. Example game types include top-down or side-scrolling shooters, a platformer, infinite runner or tower defence. If you are unsure about your game idea, please speak with module tutors about it.

Features that should be incorporated into the game application are:

- 2D Sprite work
    - Including multiple animations, multiple animated NPCs, and user controlled animated sprites
- A collection of game states
    - An introductory splash, menu and option screen
    - A screen explaining the controls and how to play
    - At least one level
    - A screen displaying win/death/end of game
    - A Pause state, the game must be able to be paused by the player
    - The game should be re-playable
    - For difficult games/level, include a level skip button
- Examples of user interaction
    - Suitable keyboard and mouse for the game/player/menu/etc
- Collision
    - Detection and resolution.
    - A simple example would be the player taking damage when colliding with an enemy, or a score incrementing when collecting items.
    - More complex example would be …
- One or more Game Mechanics
    - Methods of player interaction
    - What the player can do
    - For example, a grappling hook
- A scoring mechanism. An on-screen display of score or another method of making the player aware of their progress.
- Game Logic
    - Win/end condition
    - For example, collect all the items to win, defeat all the enemies, enemy movement, etc)
- Use of music and sound effects

- Background/menu music
- Sound effects, driven by mechanics, interaction, collisions, menus, etc

It is only necessary to complete one level of the prototype game to demonstrate its functionality. The application should be written in C++ using the framework provided as appropriate. The application's code should also be written in a structured and well commented manner using object-oriented programming principles. Credit will be given for good program structure, class construction, object-orientation, and commenting.

Report

You are also required to submit a report providing a detailed technical explanation of your game and its construction. Your explanation should be supported with pseudo-code, diagrams and screenshots where appropriate. Any work that is not wholly your own must be referenced, this includes artwork, audio, tutorials and code snippets. Following Harvard Style referencing. Referencing guides for the report and for referencing in code can be found here:
https://intranet.abertay.ac.uk/library/referencing/harvard/
https://intranet.abertay.ac.uk/docurl/44940
There is a report template provided on My Learning Space to help with the report writing. A good report will be **1500** words in length.

Submission

Electronically via GitHub and My Learning Space by Monday 31st August 2020.

- The project source code should be submitted through the Git Repo provided. Make sure you code is committed and pushed to the repo provided. For a reminder on working with Git use the guide provided in lab 0.
- The rest of the submission should be uploaded to the correct place on My Learning Space. This submission should include a standalone executable version of the project and a PDF version of the report. These files should be contained within a zip file for uploading, using the following folder structure:
  - A folder titled "exe" containing the executable file and any graphics and audio required for the project to run standalone. This standalone version of the project should run.
  - A PDF version of the report.
- The zip should be named with the following format
  CMP105_SurenameForename_StudentNumber.zip
  e.g. CMP105_SmithJohn_123456.zip

All submissions must be uploaded to the appropriate location within My Learning Space. You will be able to have multiple submissions (in case of errors) but only the last submission will be marked. Grades and feedback will be released on My Learning Space as close to the suggested date as possible. A Rubric will be used to provide feedback.

Marking scheme

Literal Grade	Evaluative Descriptor	This Assessment
A+	Excellent overall. • Demonstrates an excellent grasp of the subject matter. • Excellent capacity for original and creative enquiry. • Excellent ability to critically evaluate, analyse, synthesise and integrate complex information. • Excellent communication skills.	

	In addition, exceptional in at least one of the above.	
A	Excellent overall. • Demonstrates an excellent grasp of the subject matter. • Excellent capacity for original and creative enquiry. • Excellent ability to critically evaluate, analyse, synthesise and integrate complex information. Excellent communication skills.	A meticulously designed and constructed games application. Demonstrating a complex use of all the required features. The code is well structured and commented throughout. Demonstrating good object-oriented practice. A report demonstrating a thorough and detailed understanding of the development process.
B+	Very good overall. • Demonstrates a very good grasp of the subject matter. • Very good capacity for original and creative enquiry. • Very good ability to critically evaluate, analyse, synthesise and integrate complex information. • Very good communication skills. In addition, excellent in at least one of the above but overall performance deemed to be very good.	
B	Very good overall. • Demonstrates a very good grasp of the subject matter. • Very good capacity for original and creative enquiry. • Very good ability to critically evaluate, analyse, synthesise and integrate complex information. Very good communication skills.	A very well designed and constructed games application. Demonstrating many of the required features. Elements of the game lacking complexity or missing. The code is mostly well structured and commented. With good object orientation. The report demonstrates a very good and detailed understanding of the development process.
C+	Good overall. • Demonstrates a good grasp of the subject matter. • Good capacity for original and creative enquiry. • Good ability to critically evaluate, analyse, synthesise and integrate complex information. • Good communication skills In addition, very good in at least one of the above but overall performance deemed to be good.	
C	Good overall. • Demonstrates a good grasp of the subject matter. • Good capacity for original and creative enquiry. • Good ability to critically evaluate, analyse, synthesise and integrate complex information. Good communication skills	A well designed and constructed games application. Demonstrating many of the required features, but some lacking complexity or missing. The code demonstrates some object orientation but room for improvement

		The report provides a somewhat detailed description of the created application. Could provide a more thorough and detailed explanation of the work.
D+	Satisfactory overall. • Demonstrates a satisfactory grasp of the subject matter but limited grasp in some areas • Satisfactory capacity for original and creative enquiry. • Satisfactory ability to critically evaluate, analyse, synthesise and integrate information. Satisfactory communication skills	
D	Adequate. Achievement of all threshold standards but grasp of some subject areas and graduate attribute development may be more limited.	The games application meets the minimum requirements. Lacking many of the required features. Code is satisfactorily constructed with limited commenting and object orientation. The report provides a basic discussion of the application.
MF	Marginal fail. Performance just below the threshold standard. A reasonable expectation that a pass is achievable by reassessment without the need to repeat the module.	A very simple application that fails to meet the minimum requirements. Report contains a poor description of the work completed.
F	Performance well below the threshold level. Some limited evidence of achievement of the outcomes.	No working application or little evidence of work. No or very limited presentation. Little or no indication of understanding of subject.
NS	No assessments submitted or no evidence of achievement of the outcomes.	