Assignment 2: 3D FPS Game

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Introduction

For this assessment you are required to create a 3D FPS game. The player and any AIs should respawn on death. Destroying opponents in a single hit is fine; you do not need to implement a full health system (unless you want to!) As this is a programming assessment the game can be as visually simple as you please – primitive cubes / capsules for all walls & characters is perfectly acceptable (however, if you want to make it look great that's fine too!)Your code must be commented. Use comments to demonstrate an understanding of your code. You are not required to create any high-quality artwork, sound effects, animation, etc. You are graded only on your ability to implement the required features and demonstrate an understanding of your code.
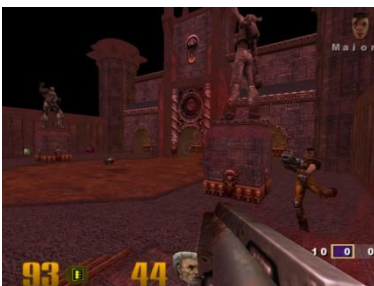
All submitted code must be your own unless very clearly labelled otherwise – any code which is not your own will not be counted in this assessment. Your game will need to contain:

- Well commented and well formatted scripts, of your own devising
- A Rigidbody based controller for player movement
- At least two weapons
  - One 'rifle' (no projectiles, just apply instant damage to any target in line of fire)
  - One 'grenade launcher' (spawns a Rigidbody projectile which causes area-of-effect damage and applies force to all Rigidbodies in the blast radius)
- One or more enemy AIs which use a finite state machine to either 'search' for the player (using a NavMeshAgent) or 'attack' if there's line of sight (raycast). You may add any additional states if you wish (for example: 'seek ammo').
- Baddies that respawn on death
- Player that respawns on death
- Some rigidbody objects to interact with (e.g. cubes and cylinders) & some scenery for cover
- A wrapper consisting of a splash screen and game over screen.

Part A

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

a) Submission is timely;
b) Enough work is available to conduct a meaningful review;
c) A broadly appropriate review of a peer's work is submitted.

To complete Part A, prepare a draft version of your game build and submit it to the peer review system in Learning Space. These should be made available for review

prior to the scheduled peer-review session. Then, attend the scheduled peer-review session.

Part B

Part B is a **single summative submission**. This work is individual and will be assessed on a criterion-referenced basis. Please refer to the marking rubric at the end of this document for further detail. To complete Part B, revise your game based on the feedback you have received. Then, upload to the Learning Space. Please note, the Learning Space will only accept a single .zip file. You will receive formal feedback from your tutor three weeks after the final submission deadline.
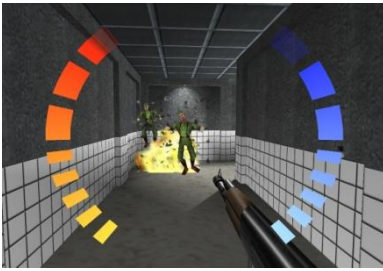
Part C

Part C is a **single formative submission**. This work is individual and will be assessed on a threshold basis. The following criteria are used to determine a pass or fail:
  a) Submission is timely;
  b) Enough work is available to conduct a meaningful review;

To complete Part C, attend your code review as per your allotted time on the timetable.

You will receive **informal feedback** from your tutor during the review.

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.

Marking Descriptors: 2D Platform Game

Criterion	Weight	Refer for Resubmission	Basic Competency	Basic Proficiency	Novice Competency	Novice Proficiency	Professional Competency
Threshold	40%	Parts A, B or C are not completed or are unsatisfactory	Submission is timely. Provided a meaningful review of peer's work. Clear evidence of game development knowledge and skills. Attended code review No breaches of academic integrity				
Player controls	10%	Player cannot move or jump. Player does not use Rigidbody	Character moves but is glitchy. Strafing does not work as expected	Player controller works as expected most of the time, but runs into occasional issues	Player controller works as expected	Player controller handles well and is fairly enjoyable to play	Player controller handles well and is enjoyable to play
Rifle	10%	Game features no rifle type weapon and/or is implemented without ray casting	Weapon 'works' but shooting is error prone	Weapon works as expected most of the time, but runs into occasional issues	Weapon works as expected	Weapon works as expected handles well, is fairly enjoyable to play and has value added sfx / vfx	Weapon works as expected handles well, is very enjoyable to play and has nice sfx / vfx
Grenade Launcher	10%	Game features no appropriate weapon and/or is implemented without ray physics / rigidbody components	Weapon 'works' but shooting is error prone	Weapon works as expected most of the time, but runs into occasional issues	Weapon works as expected	Weapon works as expected handles well, is fairly enjoyable to play and has value added sfx / vfx	Weapon works as expected handles well, is very enjoyable to play and has nice sfx / vfx
AI	15%	Game has no AI Game has AI but non-respawning	AI agents exist but only have a single state / action	AI agents exist with multiple states / actions but run into occasional issues	AI agents exist with multiple states / actions	AI agents exist with multiple states / actions Agents are interesting to play with / against	AI agents exist with multiple states / actions Agents are interesting to play with / against and have value added fx
Level Design	5%	No objects / no interaction	Game has some rigidbody objects in the scene but easy for player / AI to get stuck or lost	Game has some functional objects that can be interacted with / used for cover	Game has some assets from different sources that can be interacted with / used for cover	Game has interesting / enjoyable gameplay objects and physics	Game has interesting / enjoyable gameplay objects and physics and level aesthetic
Game wrapper	5%	Game has no wrapper Player can't restart on death Player can't leave game	Game has partial wrapper with some of splash screen, game over screen and/or in game menu	Game has partial wrapper with most of splash screen, game over screen and/or in game menu	Game has functional wrapper with splash screen, game over screen and in game menu.	Fairly aesthetically pleasing wrapper with splash screen, game over screen and in game menu.	Aesthetically pleasing wrapper with splash screen, game over screen and in game menu.
Standalone build	5%	Game is not submitted as a standalone build	Build assets exist, but game will not run or will crash on start-up	Build assets exist, game will start, but crashes / becomes unresponsive at some point	Game will run as standalone app	Game will run and support some of: different resolutions, screen modes & key bindings / joy pads	Game will run and support all of: different resolutions, screen modes & key bindings / joy pads