

# COMP305 – Game Programming 1

## Assignment 3

### Simple 3D Game

Due class #10 (Friday November 20, 2015) @ midnight.

Value 10%

Simple 3D Game

**Maximum Mark: 41**

**Overview:** Following the 3D Tutorials in class, you will create your own 3D game. Your 3D game may use either a **First Person** or **Third Person** Perspective. The game must include **enemies** for the player to **avoid and/or destroy**. A **scoring system** must also be included. You must use your own graphic and sound assets.

### Instructions :

**(12 Marks: GUI, 12 Marks: Functionality, 5 Marks: Internal Documentation, 8 Marks: External Documentation, Version Control: 4 Marks)**

1. Your Game will have the following characteristics **(12 Marks: GUI, 12 Marks Functionality)**
  - a. A **Gameplay Scene** where the main game occurs. (2 Marks: GUI, 2 Marks: Functionality)
  - b. Player control of an **Avatar** (a vehicle or character) – use the standard keys (WASD) for player movement (optional mouse control for First Person Perspective option) (2 Marks: GUI, 2 Marks: Functionality).
  - c. Computer control (simple AI) of the **enemies**. The enemies should be abundant enough to challenge the player but not be impossible to beat. (3 Marks: GUI, 3 Marks: Functionality)
  - d. Random placement of items to collect and/or obstacles to pass through or over – this will generate points for the player (2 Marks: GUI, 2 Marks: Functionality)
  - e. A **Scoring system** – ensure that the player's score is accurately calculated and displayed somewhere on the **Gameplay screen** (1 Mark: GUI, 1 Mark: Functionality).
  - f. The player must have a **life counter** or **health status** that decreases each time his **avatar** collides with an enemy (1 Mark: GUI, 1 Mark: Functionality)
  - g. Add sound effects for collisions with enemies and collecting points (1 Marks: GUI, 1 Mark: Functionality).
2. Include **Internal Documentation** for your program **(5 Marks: Internal Documentation):**
  - a. Ensure you include a program header for each module of your game that indicates: the Source file name, Author's name, Last Modified by, Date last Modified, Program description, Revision History (2 Marks: Internal Documentation).

- b. Ensure you include a header for all of your classes and methods (1 Marks: Internal Documentation)
  - c. Ensure your program uses contextual variable names that help make the program human-readable (1 Marks: Internal Documentation).
  - d. Ensure you include inline comments that describe elements of your GUI Design for your 2D game (1 Marks: Internal Documentation)
3. Include **External Documentation** for your program that includes **(8 Marks: External Documentation)**:
- a. **A company Logo** (0.5 Marks: External Documentation).
  - b. **Table of Contents** (0.5 Marks: External Documentation).
  - c. **Version History** – ensure you include details for each version of your code (1 Mark: External Documentation).
  - d. **Detailed Game Description** – describing how your game works (1 Mark: External Documentation).
  - e. **Controls** (0.5 Mark: External Documentation).
  - f. **Interface Sketch** – this section should include wireframes of each of your game screens with appropriate labels (1 Mark: External Documentation)
  - g. **Screen Descriptions** – Include at least 3 screen shots for your game: 1 for your Start State, 1 for your Gameplay State and 1 for your Game-End State (1 Mark: External Documentation).
  - h. **Characters / Vehicles** – Describe the character’s Avatar (0.5 Mark: External Documentation).
  - i. **Enemies** – Describe the computer controlled enemies and how they function (0.5 Mark: External Documentation).
  - j. **Scoring** – Describe how the player can score and how the score is calculated (0.5 Mark: External Documentation).
  - k. **Sound Index** – Include an index of all your sound clips (0.5 Mark: External Documentation).
  - l. **Art / Multimedia Index** – Include examples of your image assets. Each image should be displayed as a thumbnail (0.5 Mark: External Documentation).
4. Share your files on **GitHub** to demonstrate Version Control Best Practices **(4 Marks: Version Control)**.
- a. Your repository must include **your code** and be well structured (2 Marks: Version Control).
  - b. Your repository must include **commits** that demonstrates the project being updated at different stages of development – each time a major change is implemented (2 Marks: Version Control).

**Optional Game Features (i.e. Potential Bonus Marks).**

- A. Empower the computer controlled enemies to fire bullets.
- B. Include a final “boss monster” to avoid.
- C. Add power-ups for the player’s **avatar** (e.g. extra speed, a shield)

- D. Add a cool soundtrack to the game.
- E. Add procedural 3D map generation

### **SUBMITTING YOUR WORK**

Your submission should include:

1. An external document (MS Word or PDF).
2. A zip archive of your complete project files or link to the project files on GitHub (preferred).

Please zip all files in to a single project archive.

This assignment is weighted **10%** of your total mark for this course.

Late submissions:

- 20% deducted for each additional day.

External code (e.g. from the internet or other sources) can be used for student submissions within the following parameters:

1. The code source (i.e. where you got the code and who wrote it) must be cited in your internal documentation.
2. It encompasses a maximum of 10% of your code (any more will be considered cheating).
3. You must understand any code you use and include documentation (comments) around the code that explains its function.
4. You must get written approval from me via email.