

# COMP397 – Web Game Programming

## Assignment 4

### The Side Scroller

Due Week #11 (Monday July 25, 2016) @ midnight.

Value 15%

The Side Scroller Web Game

**Maximum Mark: 60**

**Overview:** Using the Mail Pilot Project Template provided, you will create an original side scrolling 2D arcade game (left to right or right to left). The game must have a **start screen** (that includes instructions for the user), the **main game screen**, and a game-end screen. The game must include **enemies** for the player to **avoid**. A **scoring system** must also be included. You must use your own graphic and sound assets (not the assets included with the Mail Pilot Template). The use of classes and object oriented programming (using TypeScript) is highly encouraged to prepare you for the final project. You may choose any Web Game frameworks (such as CreateJS) or others to create your game.

### Instructions :

**(19 Marks: GUI, 19 Marks: Functionality, 5 Marks: Internal Documentation, 9 Marks: External Documentation, 4 Marks: Version Control, 4 Marks: Cloud Deployment)**

1. Your Game will have the following characteristics **(19 Marks: GUI, 19 Marks Functionality)**
  - a. A **Menu Scene**, that provides a **user interface** that allows the user to view the **Instructions Scene** or start the **Game Scene** (2 Marks: GUI, 2 Marks: Functionality)
  - b. An **Instructions Scene**, that displays rules and instructions on how to win the game. Ensure that the instructions are easy to view and understand (2 Marks: GUI, 2 Marks Functionality).
  - c. A **Gameplay Scene** where the main game occurs. The background will “scroll” in one direction only – either left or right. (3 Marks: GUI, 3 Marks: Functionality)
  - d. A **Game-End Scene** – this will display the player’s final score and give the player the option to play again (2 Marks: GUI, 2 Marks: Functionality)
  - e. Player control of an **Avatar** (a vehicle or character) – the mouse will be the main input device and control all basic movement. Ensure that player movement is natural and makes sense (i.e. don’t make the player’s avatar look like a fancy cursor) (2 Marks: GUI, 2 Marks: Functionality).
  - f. Computer control (AI) of the **enemies** (e.g. in the Mail Pilot Template the enemies are the clouds. The Artificial Intelligence was very simple – a random distribution and direction of the clouds). The enemies should be abundant enough to challenge the player but not be impossible to beat. Ensure that your enemies interact with each other

- in a believable manner (i.e. if your enemies are cars, they shouldn't overlap like clouds)  
(3 Marks: GUI, 3 Marks: Functionality)
  - g. Random placement of items to collect and/or obstacles to pass through or over (e.g. in the Mail Pilot Project the player's plane would pass over islands) – this will generate points for the player (2 Marks: GUI, 2 Marks: Functionality)
  - h. 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).
  - i. 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)
  - j. 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 functions and classes (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 scrolling game (1 Marks: Internal Documentation)
3. Include **External Documentation** for your program that includes (**9 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 (2 Marks: External Documentation)
  - g. **Screen Descriptions** – Include at least 3 screen shots for your game: 1 for your Start Screen, 1 for your Gameplay Screen and 1 for your Game-End Screen (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** and deploy to a **Cloud Service** (Microsoft Azure, Heroku, etc.) to demonstrate Version Control Best Practices (**4 Marks: Version Control, 4 Marks: Cloud Deployment**).
- 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).
  - c. Ensure your game is live and online. Deploy to a Cloud Service of your choice (4 Marks: Cloud Deployment).

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

- A. Empower the computer controlled enemies to fire bullets (2 Marks: GUI, 2 Marks: Functionality)
- B. Include a final “boss monster” to avoid (2 Marks: GUI, 2 Marks: Functionality)
- C. Add power-ups for the player’s **avatar** (e.g. extra speed, a shield) (2 Marks: GUI, 2 marks: Functionality)
- D. Give the player’s **avatar** the ability to kill or destroy the computer controlled enemies. (2 Marks: GUI, 2 Marks: Functionality).
- E. Add a cool soundtrack to the game (1 Mark: Functionality)
- F. Animate the player’s **avatar** as he controls it (e.g. adds a walk-sequence, tilt it left and right) (2 Marks: GUI, 2 Marks: Functionality).
- G. Allow the game to scroll in any direction in response to the player’s controls (2 Marks: GUI, 2 Marks: Functionality).

## **SUBMITTING YOUR WORK**

Your submission should include:

1. An external document (MS Word or PDF).
2. A link to your project files on GitHub.
3. A link to your live site on a Cloud Service of your choice.
4. Your project files zipped and submitted to e-centennial

This assignment is weighted **15%** 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.