# COMP 397

Web Game Programming

Final Project Overview

## Instructions:

You are tasked with create a complete, polished and original 2D game. You will work with a team of your peers to design, develop, test and demonstrate your project along with information learned throughout the process. You group will be responsible for providing industry-accurate documentation and reviews of work throughout the process. Each member of the group will be assigned a **development role** that they are responsible for during the course of development.

## Development Roles:

### Software Engineer (SE)

* Responsible for scripting and scene generation. Must communicate with game designer to fully implement the ideas of the game.
* Maintain a logical coding standard throughout the project.
* Responsible for management of the GitHub repository and change messages.
* Responsible for feature implementation and feature limitations

### Producer / Project Manager (PM)

* Overall management over the project.
* Scheduling and tracking of tasks and group deadlines
* Responsible for all documentation including the game design document, presentation files and other.

### Artist / Sound Engineer (AS)

* Development and acquisition of all art, sound and other multimedia assets used in the game.
* Creation of original assets used in the game
* Editing assets to adhere to game requirement and minimizing file size without sacrificing quality.

### Game Designer (GD)

* Responsible for defining your game's **main mechanic** and all subsequent secondary mechanics along with formal and dramatic elements of the game
* Work with all other roles to ensure consistency and clarity across all disciplines.
* Planning of each levels including asset placement and events occurring throughout the level

### QA Tester (QA)

* Systematically testing of all implements features during the build process.
* Ensure bug-free submissions for each build
* Creating feedback documentation (bug reports, usability reports, etc)

## Marks & Important Dates

This project is broken into **7 distinct parts** each with their own due dates and requirements.

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| **Deliverables** | **Due Date** | **Value** |
| **Exercise 1** – Environment Setup (GitHub, IDE) | **Week 1** | **1%** |
| **Part 1** – Team Contract | **Week 2** | **5%** |
| **Part 2** - Game Pitch & Game Design Document + Peer Review 1 | **Week 3** | **5%** |
| **Assignment 1** – Simple Interface Game (Slot Machine) | **Week 5** | **12%** |
| **Exercise 2** – Finite State Machine (FSM) | **Week 4** | **5%** |
| **Part 3** - First Playable Build + Peer Review 2 | **Week 5** | **5%** |
| **Exercise 3** – Collision Detection and Response | **Week 5** | **5%** |
| **Part 4** – Alpha Release + Peer Review 3 | **Week 7** | **5%** |
| **Mid-Term Test (Individual)** | **Week 7** | **15%** |
| **Mid-Semester Break – NO CLASSES** |  |  |
| **Assignment 2** – Simple 2D Scrolling Game | **Week 9** | **12%** |
| **Part 5** – Beta Release + Peer Review 4 | **Week 10** | **10%** |
| **Bonus In-Class Exercise** (Play Testing) | **Week 11-12** | **5%** |
| **Part 6** - Final release + Peer Review 5 | **Week 13** | **10%** |
| **Part 7** – Final Presentation | **Week 14** | **10%** |

## **NOTE:** Starting Week 3 and for every Project release thereafter (Week 3, Week 5, Week 7, Week 10 and Week 13), each member of the group will complete a **Peer Review Form** rating the performance and involvement of each group member (including their own). These Peer reviews will make up 5% of your final grade.

## **Project Submission Options:**

Your group can select from **one of three (1 of 3)** categories of games described below. Each category has a defined group setup that must be adhered too.

### Top-down / Side-scrolling Bullet Hell Shooter

* Group setup: 2 to 3 members - 1 SE, 1 GD / A, 1 QA / PM
* Features:
  + Multiple bullet types
  + Enemy movement patterns
  + Multi-stage boss (level 3)
  + Distinct setting progression
  + Timed challenge event / endless mode (optional)

### Top-down Tank Game / Twin-Stick Shooter

* Group setup: 3 to 4 members - 1 SE, 1 GD, 1 QA / PM, 1 AS
* Features:
  + Multiple tank classes / load outs
  + 2 player local multiplayer
  + Game Pad input preferred
  + Distinct terrain with destructible objects
  + Bombs, power-ups and abilities

### 2D Platformer:

* Group setup: 4 to 6 members - 2 SE, 1 PM, 1 GD, 1 AS, 1 QA
* Features:
  + Physics
  + Movement with jumping
  + Enemies / traps / obstacles unique to each level
  + At least one **unique** mechanic
  + Powerups

## **Deliverables**

### Part 1 – Team Contract (5%)

### Due: Week 2

**Requirements**

You will create a group of up to 6 members based on the type of game you will be developing. You will assign group members to a prime role.

Each group member will sign the contract and be accountable to deliver their portion of the game. All team members must be able to communicate decisions, techniques, and processes related to all aspects of the development process for their game. The Team Contract will outline expectations for all team members to adhere to, as well as the consequences for failing to meet each expectation.

In the event that a team member fails to meet Team Requirements, some of the repercussions may include having a team member ‘flagged’ as unproductive. Any member who is flagged will receive a grade of 0 (zero) on all following review sessions until the flag is removed.

If conflicts arise, team members may choose to leave a group and join another group at the discretion of the professor. A new version of the contract will have to be drafted for both teams being affected by this change.

During team formation you will choose a **Team Name** and develop a **Team Logo** that will be used with all documents, presentations and communications.

### Submission:

* Signed Team Contract Document (PDF File)
* Team Logo (PDF File)

### Part 2 - Game Pitch & Game Design Document (5%) Due: Week 3

**Requirements**

Your group will present a **game pitch** to the class during the lab session of the week. Your game pitch must describe what your group intends to create over the semester and excite the audience about your game.

Your presentation must include:

* **Title Page (1 slide)** - This slide must contain a **Team name** and **Team logo**. The name and logo must be original and unique.
* **Roles (1 slide)** - This slide must contain a mug-shot of each member of your group along with their **development role** and their **specific responsibilities** for the project.
* **Influences (1 slide)** - This slide outlines other games that have played an influence on your decision to create your project.
* **Game overview (1 or more slides)** - This group of slides must describe the game being created. This section must specifically define which game type the group has selected (platformer, bullet hell shooter or tank game as shown above).
* **MDA (1 or more slides)** You must also outline the game **mechanics**, **dynamics, aesthetics** that will distinguish your game. **Mechanics** describe the rules of the game. **Dynamics** must detail how the player uses the rules. **Aesthetics** details the player experience and the feel of the game. Include a list of features that you wish to implement separated into **needs and wants** for your game.
* **Planning (1 or more slides)** – This section will detail your plan to create your project with activities planned for each member each Week. It is recommended to use a table to display this information.

Your group must also create a 1st version of the **game design document**. The template for the document will be available on eCentennial (and slack). Your document must reflect all the information presented within the presentation along with other information pertaining to your game that is relevant to this point of development.

### Submission:

* Presentation file
* Game Design Document v.1

### Part 3 - First Playable Release (5%)

### Due: Week 5

**Requirements**

Your group is responsible for the first playable version of the game. This is **NOT** a complete game but rather a project containing complete elements and progression towards a complete game.

* Your project should contain **placeholder** graphics. These are stand-in graphics that are not representative of the final game.
* Collision detection should function as expected between objects as necessary.
* The **main mechanic** must be working and playable.

Your game design document should also be kept up-to-date reflecting any improvement and additions made since the final submission.

Your group must also demonstrate progress towards the final game by providing a link to the project's GitHub repository. Ensure the repository contains multiple commits from several members of the group. Ensure your project is organized and understandable

### Submission:

* Link to Live Site
* Game Design Document v.2
* GitHub link to project repository

### Part 4 – Alpha Release (5%)

**Due: Week 7**

**Requirements**

At this point your game should be playable from start to finish (all 3 levels) with the first level being complete. Your overall game should contain 75% of all graphical assets completed and implemented within the game. Furthermore, your game should contain some form of a success condition (scoring system and/or time). Your game should also feature a splash screen and start screen with the ability to load into the 1st level. Finally, your game should have a game over screen.

Your game design document should also be kept up-to-date reflecting any improvement and additions made since the final submission.

Your group must also demonstrate progress towards the final game by providing a link to the project's GitHub repository. Ensure the repository contains multiple commits from several members of the group. Ensure your project is organized and understandable

### Submissions:

* Link to Live Site
* Game Design Document v.3
* GitHub link to project repository

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### Part 5 – Beta Release (10%)

**Due: Week 10**

**Requirements**

At this point your game should be 95% complete (both graphically and functionally) with only very minor additions left. All 3 levels must be functional, complete and playable from start to finish. Transitions between levels must also be implemented. Your tutorial must be informative but unobtrusive and also **integrated within the level**.

Your game design document should also be kept up-to-date reflecting any improvement and additions made since the final submission.

Your group must also demonstrate progress towards the final game by providing a link to the project's GitHub repository. Ensure the repository contains multiple commits from several members of the group. Ensure your project is organized and understandable

### Submissions:

* Link to Live Site
* Game Design Document v.4
* GitHub link to project repository

### Part 6 - Final Release (10%)

### Due: Week 13

**Requirements**

Your game is fully functional, complete, bug-free, polished and fun to play. Ensure all end of your project are organized. Your game should be hosted online through your WebGL build with no errors and no performance issues. Your GitHub page must reflect an organized and professional software project. Your game design document must accurately describe the game created and the demonstrate idea generation and the thoughts behind all mechanics and all aspects of your game.

### Submission:

* Link to Live Site
* Game Design Document v.5
* GitHub link to project repository

### Part 7 - Final Presentation (10%)

### Due: Week 14

**Requirements**

You will Present your full functional game to the class. Evaluations will take into account your **presentation materials** (which should be appropriate for a game pitch), your **presentation value** (vocal presentation, knowledge of materials, professionalism) and your **Game Demo**. Your final presentation should be timed so that it can be delivered within 7 to 10 minutes (including your game demo). You should be prepared to answer questions about any aspect of your project. Only one team member needs to present. However, it is recommended that you include a team member to control the slides and another team member to play the game during the Game Demo portion of your presentation.

**NOTE: The Final Presentation takes the place of a Final Test in this course – attendance for all team members is mandatory. Failure to attend and participate will result in a zero grade for the presentation portion of your final project.**

Ensure your Final Presentation must contain the following:

* **Title Page (1 slide)** - This slide must contain a **Team name** and **Team logo**. The name and logo must be original and unique.
* **Roles (1 slide)** - This slide must contain a mug-shot of each member of your group along with their **development role** and their **specific responsibilities** for the project.
* **Influences (1 slide)** - This slide outlines other games that have played an influence on your decision to create your project.
* **Game overview (1 or more slides)** - This group of slides must describe the game being created. This section must specifically define which game type the group has selected (platformer, bullet hell shooter or tank game as shown above).
* **MDA (1 or more slides)** You must also outline the game **mechanics**, **dynamics, aesthetics** that will distinguish your game. **Mechanics** describe the rules of the game. **Dynamics** must detail how the player uses the rules. **Aesthetics** details the player experience (visual, auditory, etc.) and the feel of the game. Include a list of features that you wish to implement separated into **needs and wants** for your game.
* **Planning (1 or more slides)** – This section will detail your plan to create your project with activities planned for each member each Week. It is recommended to use a table to display this information.
* **Instructions (1 slide)** detailing how your game is played. This includes the type of control used for your game as well as detailing how players score points or progress through the game.
* **Game Demo** – You will **demonstrate** your **working game** to the class. You must show each of the various scenes in your game (start, game levels and end). You must also show a **win condition** and **game over condition**
* **Team Retrospective** **(1 slide) –**  Discuss the challenges your group had to overcome during development and how you would approach the game project differently if started again.
* **Future Possibilities (1 slide)** - Discuss how you would expand your game given more time for development.

### Submission:

* Presentation files