COMP 2659 Course Project – Stage 1: Game Specification

Released:	Thursday, January 5, 2017
Team-up Deadline:	**Tuesday, January 10, 2017**
Concept Short List Deadline:	**Friday, January 13, 2017**
Target Initial Draft Completion Date:	Monday, January 16, 2017 (approx.)
Target Final Draft Completion Date:	Friday, January 27, 2017 (by 2359 or before)

Overview

In this course you will develop a 2-D video game of your choice. The first stage is to write a game specification, including all the details requested below. No programming is involved. The remaining stages (released throughout the semester) will deal with the game code design and implementation.

It is critical that the game be well thought out in advance, and that your specification be clear, precise and complete. Otherwise, your tasks on the remaining stages will be unclear.

You may invent your own unique game, or derive inspiration from a classic 2-D video game (e.g. from the early 1980s or your mobile device). All submitted specifications this semester must be for different games. Pong will be used as an example throughout the course so it is not eligible to be used. **You must clear your game idea with your instructor before beginning detailed work on your specification (see below).**

Keep your core game idea simple! Although not allowed, Pong is an example of a game of suitable complexity.

Group Work

Students may work individually or in teams of two. If you wish to work in a team, you and your partner **must** inform your instructor via email before 3:00 p.m. on Tuesday, January 12.

Students who form a team **must** remain in that team for the duration of the semester, unless explicitly directed to "divorce" by the instructor. If a team is divorced or if one partner withdraws from the course, the affected student(s) are responsible for completing all remaining stages individually.

The objective is that partners will put in equal effort. Grading of the project will be done in a demo and both partners are responsible for understanding all project code. The project gets one grade and failure to understand the project code by either partner will result in a grade deduction for the project!

Game and Specification Requirements

Games must satisfy the following general requirements. Additional details are discussed in the relevant sections which follow.

- Games must be based on animated, monochrome, 2-D graphics[1].
- Games must be interactive, with near-instant ("real time") feedback to user input events.
- Both 1-player and 2-player versions must be specified.
- Games must include sound effects and music.
- Basic game play must involve user input from the keyboard. Optionally, mouse input may also be used for some user input during game play. Mouse input will be mandatory for a welcome "splash screen" in a later stage, but this can be ignored initially.
- The core game-play rules and graphics should be kept relatively simple! If extra elements are desired, it must be possible to add them only after the core game is working.

All of the following sections must be present in your specification document. All requested information must be provided. Supplementary sections and explanations may be included if judged necessary.

1. *General Game Overview*

   A high level summary of the game concept. It must be possible to describe the essential concept clearly but concisely, in one paragraph. This must be accompanied by a hypothetical screen shot.

2. *Game Play Details for Core 1-Player Version*

   This is the main section of the document. You must divide it into appropriate subsections for clarity.

   In detail, describe the game play. All rules (e.g. for scoring and winning, if applicable) must be clearly and explicitly stated. The game world physics[2] must be described, if applicable. This section must include at least one more hypothetical screen shot. Include additional diagrams if they help explain the game. A detailed description of how the keyboard and/or mouse is used for input is also required.

   Proper citation must be given for any images copied from elsewhere.

   In a subsection, narrate an example gaming session. Explain the starting state of the game, and how typical play might progress. Note that some games are open-ended, while others have definite final goals.

   In a subsection, list all game objects and/or object types (e.g. the player's ship, enemy missiles, etc.).

[1] One of the best ways to compose 2-D graphics is to use "sprites". Consult your instructor if you are unsure what this means.

[2] For example, how do balls bounce? How are collisions detected? Keep all game physics exceedingly simple! Pong is a good example of a game with appropriately simple physics.

In a subsection, list all game "events". Each game event is to have a brief description. Three types of events must be considered:

1) asynchronous, user input events (e.g. pressing the space bar to fire a shot);
2) synchronous, timed events (e.g. every two seconds, an enemy ship appears);
3) condition-based events (i.e. events that are triggered by the occurrence of other events, when some condition becomes true).

The game's response to, or behaviour at each event must be summarized.

IMPORTANT: The idea of objects and events in a video game is critical for design and implementation. Regardless of whether the game is programmed using an object-oriented language, which you will not be using, taking this perspective will make designing your project far easier.

3. *Game Play Details for Core 2-Player Version*

In detail, explain the 2-player version of the game and how it differs from the 1-player version. Any changes to the rules (e.g. for scoring and winning) must be stated. At least one hypothetical screen shot of the 2-player version must be included.

Note: in the 2-player version, each user will sit at her own computer. The two computers will be connected (e.g. via their serial ports). Play can be simultaneous, or can alternate between players. However, each player must be able to simultaneously see a shared world.

4. *Sound Effects*

It is hard to describe sound effects in writing. However, list a small number (e.g. two to four) sound effects which your game will incorporate. Describe the game events which will trigger each one. Note that sound effects must be kept basic (e.g. explosions, ball bounces, etc). It will not be possible to play simulated or recorded speech. At least one sound effect must be due to a synchronous event (or due to a condition-based event triggered by a synchronous event). At least one must be due to an asynchronous event (or due to an event triggered by an asynchronous event).

Your game must include background music. A simple, cyclic melody is sufficient. It is not necessary to describe the music in this document.

5. *Additional Features*

All of the above sections are for describing *core* game elements. Remember, the core game should be kept simple. It should either be absolutely minimal, or at least note the features which can be left out if you need to scale down the project.

In this section summarize any additional features which you would like to add if you have time. The core game should not rely on any of these being implemented.

Your specification must include sufficient detail, such that it should be possible to give your specification to a knowledgeable programmer and they should be able to create your game without making assumptions or ever having to talk to you.

Concept Short List

A short list of three potential game concepts must be submitted by Friday, January 15, at the start of class (hard copy). Rank these in order of preference, from highest to lowest. For each, provide:

- a one-paragraph summary of the game concept
- one hypothetical screen shot

Following this submission, your instructor will discuss these with you (and your partner, if applicable). At this time, your instructor will either clear you to continue work on one of these concepts (perhaps with some requested changes or suggestions), or will require you to choose a new concept.

Initial and Final Drafts

An initial draft of the game specification must be finished by approximately Monday, January 18. This version is to be a **complete** draft of the game specification, **with all sections and requested content provided**.

After Monday, January 18, you (and your partner, if applicable) will be required to meet with your instructor for a consultation, prior to completion of the final version. At this time, your instructor may request changes or clarifications, and may make suggestions.

For this project, a precise word or page count is not being specified. However, it is difficult to imagine a complete document which is less than five pages long, including pictures.

Other Requirements

Specifications must be prepared electronically, in Word format (i.e. handwritten text will not be accepted). Hand-drawn diagrams can be used only if they are very neat and a scanned version is included in your document. You will be required to share your specification with your instructor using a student account on MRU network Acadshare drive (I:\).

The game specification will be graded as part of the final project marking process. Note that this means it is acceptable to make modifications to the specification throughout the semester, if necessary. The final submission will be graded based on:

- quality and appropriateness of game concept
- completeness of spec., including all required sections and details
- clarity and precision of spec.
- quality of English (spelling, grammar, etc.)
- quality of document structure, formatting and layout