



# QUASAR

## Summative Project Proposal

03.12.2018

---

Paige Rennison & Alex Susilo

ICS3U-02

Initial Proposal: Dec. 03 2018

Update 1:

Update 2:

## Objective

**Paige :** I hope to gain experience from applying what I have learnt thus far in ICS3U into creating a large project.

**Alex :** By doing this project, I hope to achieve a further understanding of the language as well as get a feel of the work environment. I have learned a substantial amount of C++ this year, dealing with different syntax, functions, arrays, and more. To put all that I have learned into this one project is very exciting for me and I think will deepen my understanding of C++. Also, for all my previous assignments, I have always worked alone and did everything by myself; however, this time, I decided to work with a partner. The reason I decided to work with a partner is because I wanted to gain experience on how it feels to work with others on a single program as well as get used to working with others as it would simulate a real computer science work environment.

## Description

The player starts in the centre of the screen where he or she will be prompted with a countdown for when the game starts. Once the game starts, extraterrestrial objects will approach the player from all around the screen. Using the, “A,Q,W,E, D” keys, the player must fend off incoming objects as soon as they are in range of the character’s attacks.

The objective of the game is to repel incoming objects until the player has defeated all the enemies in the level. If an object makes contact with the player, the level must be restarted. If the player makes it through the level completely untouched, they may proceed to the next level. The player must pass through a series of levels in order to officially beat the game.

### Character Movements

Actions include

- I. Attack Left (Key “A”)
- II. Attack Right (Key “D”)
- III. Attack Up (Key “W”)
- IV. Attack Diagonal Left (Key “Q”)
- V. Attack Diagonal Right (Key “E”)

## Extraterrestrial Objects

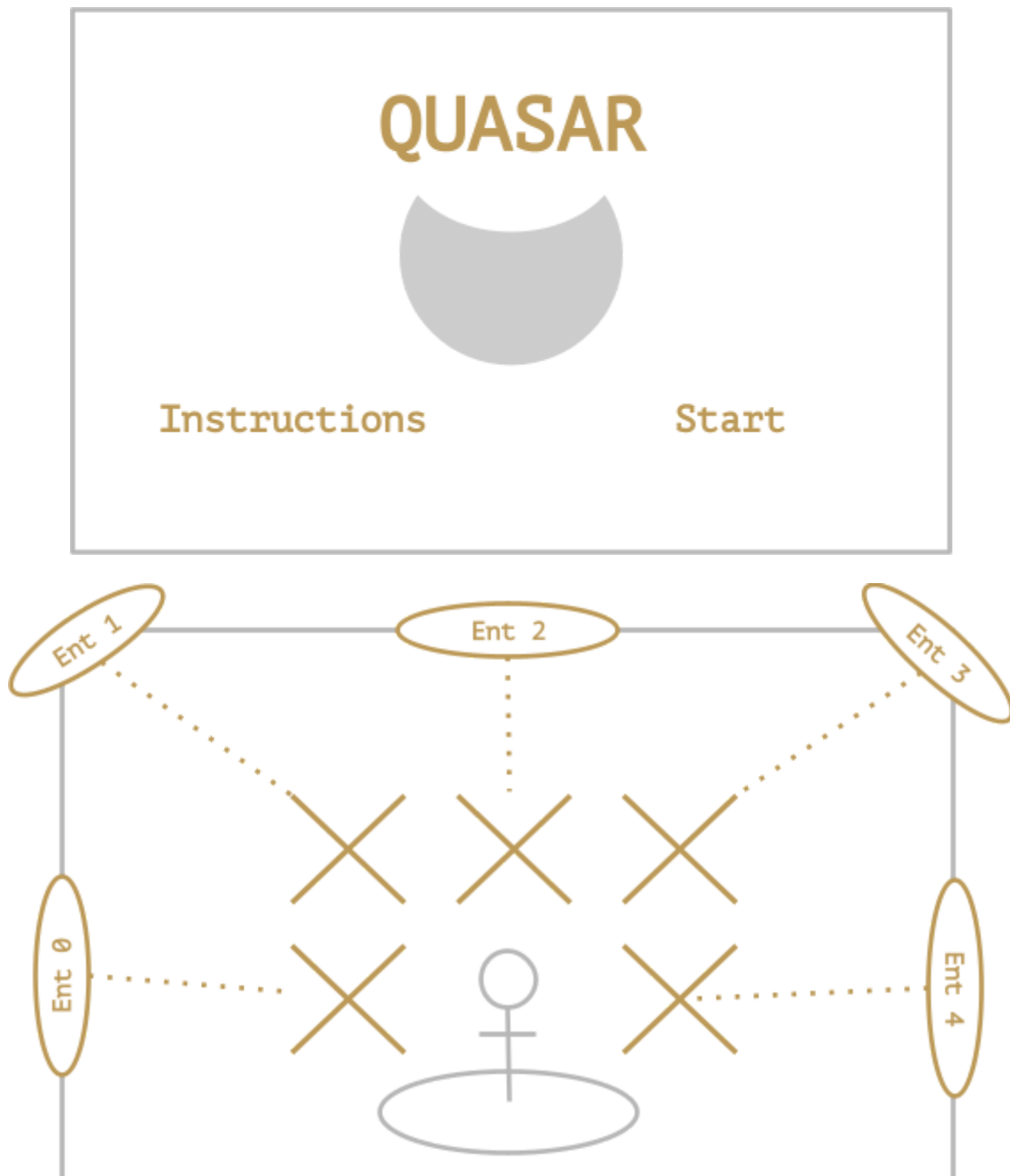
In QUASAR, there are three distinct levels of enemies, each having their own unique style of approach and design. The level one enemies are the easiest difficulty of enemies. In order to defeat them, you simply press the corresponding key once depending on which entrance they came from. For level two enemies, the player must press a sequence of two or three keys to defeat them. Finally level three enemies, the player must press a sequence of five or six keys to defeat them. Some examples of possible objects include:

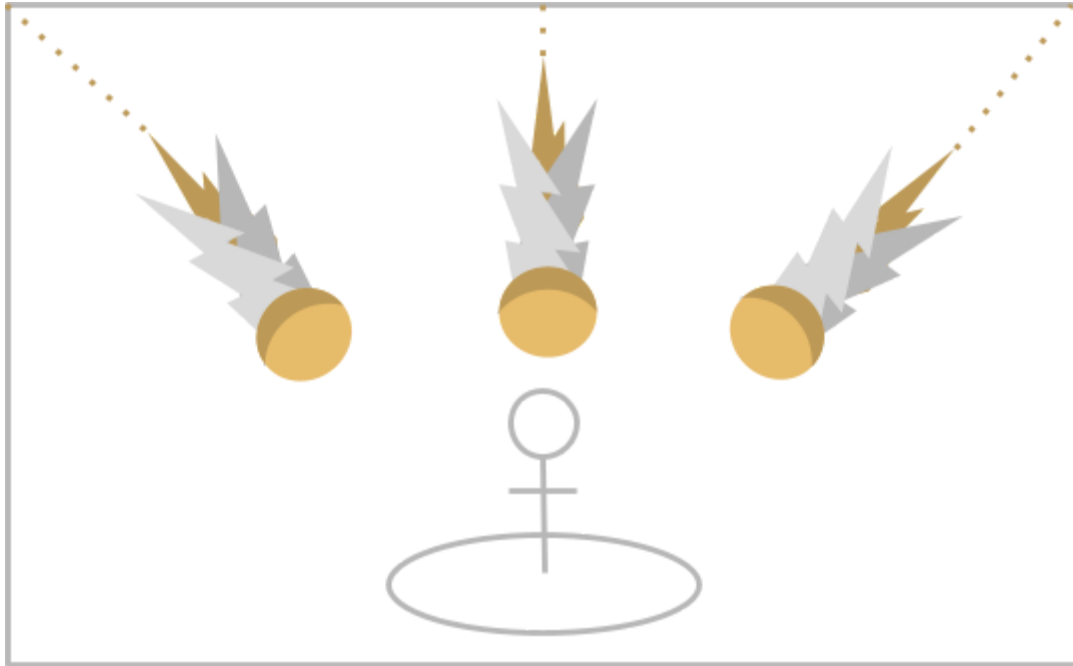
- Asteroids & Meteorites
- Extraterrestrial Beings & Aliens
- Celestials & Higher Beings

## Game Levels

As mentioned earlier, if the player successfully defeats all the enemies untouched, they may proceed to the next level; however, if they are unsuccessful in repelling all enemy attacks, the player loses and the level is restarted. It is important to know that even though the level is restarted, the level would not be exactly the same as the enemies would appear from different entrances all the time, thus not making it possible to simply memorize where the enemies come from and when to press certain keys.

## User Interface





## Development Plan

### I. First Major Steps

The first major implementation we are going to work on is the character's movements. This includes where the character starts on the screen as well as which keys attack where on the screen. Once we have completed that first implementation, we will then proceed to work on the different enemies and the entrances they come from. We will start with the main entrances of left, right, and up, and will further proceed to the diagonal entrances. If we are able to complete these two major implementations, we will essentially have completed 80% of the game and its mechanics.

### II. Core Functionality

The core functionalities of the game are the characters attacks on the different locations as well as the enemies and the different entrances they come from. Without these two major functions, the game would have no purpose.

### III. Droppable Features

1. Entry points 1 and 3 can be removed as we do not need five entry points in which enemies can attack the player. Simply having two or three entry points is more than enough.
2. We can decrease the different types of enemies the player is faced with. Having three different types of enemies is great but just having one is fine as well.
3. Another feature we can decrease is the amount of levels. In AAA titles, the player would go through a series of levels; however, many games also have one level to them to beat the game which is completely okay as well.

## Detailed Design

### I. Structures

1. Different Enemies
2. Speed Of Enemies

### II. Text Files

Under the Instructions menu, we will read in files that display the instructions and explain the different enemies. Having this information stored as a text file allows possible changes to be made to the stats of enemies and if any additions need to be made to the instructions later on during the summative.

### III. Arrays

1. Entrances
2. Using arrays within the structures

### IV. Functions

1. A function that randomly determines which entrance an enemy will enter from.
2. A function for every directional attack (minimum 3).
3. A function for object change in location towards the character.
4. A function that determines the "Death" process of an object.
5. A function that determines the "Death" process of the character.