**Grade 11 Computer Science ISP**

Overall expectations being assessed in this independent study project:

• A1. demonstrate the ability to use different data types, including one-dimensional arrays, in computer programs;

• A2. demonstrate the ability to use control structures and simple algorithms in computer programs;

• A3. demonstrate the ability to use subprograms within computer programs;

• A4. use proper code maintenance techniques when creating computer programs.

• B1. use a variety of problem-solving strategies to solve different types of problems independently…;

• B2. design software solutions to meet a variety of challenges;

• B4. apply a software development life-cycle model to a software development project;

In all phases of this ISP, you will be guided by an exemplar produced by Mr. Gordon.

The emphasis in this ISP is on understanding and applying the process of software development. The greatest success has historically come to students who plan their deliverables according to a manageable schedule and stick to their plan.

**Scope**

Aim to create a modest application that solves a problem you care about. If you solve the problem well, it is highly likely that others will find your application useful as well. Challenge yourself with something new, but avoid overreaching.

**Due dates**

The proposal is due on Tuesday, February 28, 2017, at the start of class.

The first checkpoint (prototype) is due on Wednesday, March 8, 2017.

The second checkpoint (second prototype) is due on Tuesday, April 4, 2017.

The final submission (completed product) is due on Monday, April 10, 2017.

Note that you will be granted significant opportunities to work in class, but that there is, like any Grade 11 university preparation course, an expectation that work be completed outside of class time as well.

**Proposal**

Modify this document and add your responses to the following prompts below.

**What problem will your application solve?**

*Write a paragraph to describe the utility of your application. This applies equally for games. When would someone use your application? Why would they use your application?*

My application will be a game; it will solve the entertainment issue plaguing our society. My game will be a simply driving game where the users goal is to get a car into a designated spot without it touching any walls or other cars. This game will be played when a person is bored and need something to do, however this game will most likely be difficult meaning that one would need to concentrate while playing it. The game will also help teach new drivers about driving and angles, which will make our roads safer.

**What is your inspiration for this project?**

*Have you seen another application that you wish to improve on? Has someone asked you to create this?*

Recently I have started my driving classes to get my G2 and my teacher uses a game to help teach me to park, when I watched him play it and heard about this project, I thought it would be a nice challenge. As well throughout my childhood one main computer game I remember playing is parking mania and I recently looked it up again and decided that it can’t be that hard to make.

**What is your prior experience in this area?**

*Have you written an application like this before? Have you made use of any required APIs (for example, SpriteKit) before?*

The experience I have in this area is what we have done during class to do with Spritekit and touch detection. I have experience working with nodes and scenes, as well as giving an object a bitmask, these will all be important in making the game. As well I have experience in trigonometry.

**What are skills do you hope to acquire by completing this project?**

*For example, you might be writing a networked application for the first time. Or, you may be writing an application that requires a particularly well designed user interface. Describe what you expect to learn by writing this application.*

I hope that I will learn more about turning of cars since they turn differently than I am used to coding. As well I hope to expand my knowledge of making a nice user experience and my knowledge of SpriteKit.

**Rate the personal difficulty level of this project.**

I would rate this difficulty a medium, I have made games before, however the turning on cars is very different than anything I have ever worked on before. As well I do not have much experience working with SpriteKit, and the physics bodies included.

**Identify what you think your biggest challenge for successfully completing this ISP will be.**

I think if I can get the detection to work as early as possible I can spend much more time working on the turning which will be the hardest part. As well the acceleration and deceleration working with the complicated turning will be a challenge.

**Make storyboards to indicate the user interface and/or functionality of your application.**

