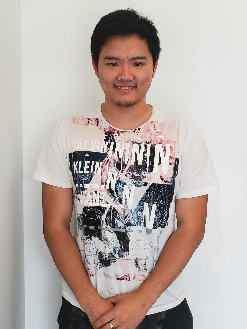
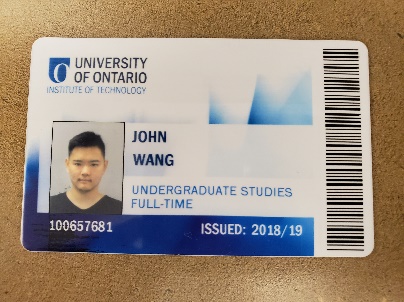
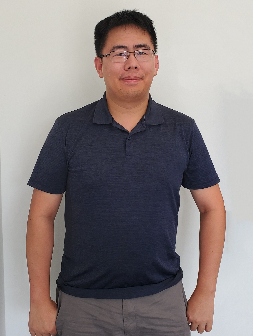
INFR 3110U: Assignment 1

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# Table of contents

1. Introduction
2. Use of Program
3. Design Patterns
   1. Command Design Pattern
   2. Factory Design Pattern
   3. Singleton Design Pattern (DLL)
   4. Game Loop Pattern
4. Pseudocode/UML
5. Implementation
   1. Saving and Loading the map
   2. External Camera Script
6. External Code
7. Screenshots and References

*Abstract*—This document outlines how our level editor works along with descriptions of how the different design patterns are used.

# Introduction

Our level editor allows all members of our GDW team to place objects anywhere in the scene and save the data to a text file.

# Use of Program

To meet the objective, we have implemented functions to interact with the objects of the program through interfacing with the UI, or through hotkeys set up according to typical RTS-style game functions. This program has the functions to:

### Save and Load

#### The ‘I’ key is a shortcut for loading

#### The ‘O’ key is a shortcut for saving

### Place 4 objects

#### 1-4 can be used as hotkeys for placing objects

#### The ‘Shift’ key can be used for persistant object placement

### Select one or more object(s)

#### A Selection box can be used by draging the mouse

#### ‘Ctrl-LMB’ and ‘Shift-LMB’ can be used for multiple-selections

#### Clicking off an object will deselect it

### Delete and upgrade selected objects

#### ‘Del’ can be used to delete

#### The ‘G’ key is a shortcut for upgrading

#### The player cannot be deleted

#### Objects can only be upgraded 5 times

#### ‘Shift + Del’ deletes all objects (except the player), and clears the undo and redo stacks

### Undo and Redo all actions, except saving and loading

#### ‘Ctrl-Z’ is a shortcut for Undo

#### ‘Ctrl-Y’ is a shortcut for Redo

### Move a player character

#### The movement of the player character is controled with wasd

### Control a RTS-Style Camera

#### The ‘Q’ and ‘E’ keys, and the mouse wheel scrolls controls zooming

#### The Keyboard’s Arrowkeys, the mouse’s middle mouse button, moving the mouse to the edge of a screen moves the camera along the horizontal plane.

#### Double clicking an object will allow the camera to attempt to center and follow that object. This can be undone by clicking off the object.

### Game Pausing

#### The ‘P’ key is a shortcut for pausing

# Design Patterns

## Command Design Pattern

First, confirm that you have the correct template for your paper size. This template has been tailored for output on the A4 paper size. If you are using US letter-sized paper, please close this file and download the Microsoft Word, Letter file.

## Factory Design Pattern

The template is used to format your paper and style the text. All margins, column widths, line spaces, and text fonts are prescribed; please do not alter them. You may note peculiarities. For example, the head margin in this template measures proportionately more than is customary. This measurement and others are deliberate, using specifications that anticipate your paper as one part of the entire proceedings, and not as an independent document. Please do not revise any of the current designations.

## Game Loop Pattern

# Pseudocode/UML

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# Implementation

## Saving and loading the level

Both saving and loading the level in our editor involves interfacing with a text file. We created a dll called MapLoader.dll to facilitate the save and loading of data. Our level data text file holds four float each line separated by a ‘,’. The first element specifies the object and the subsequent three values contain the X, Y, and Z positions.

## Identify the Headings

Headings, or heads, are organizational devices that guide the reader through your paper. There are two types: component heads and text heads.

Component heads identify the different components of your paper and are not topically subordinate to each other. Examples include Acknowledgments and References and, for these, the correct style to use is “Heading 5”. Use “figure caption” for your Figure captions, and “table head” for your table title. Run-in heads, such as “Abstract”, will require you to apply a style (in this case, italic) in addition to the style provided by the drop down menu to differentiate the head from the text.

Text heads organize the topics on a relational, hierarchical basis. For example, the paper title is the primary text head because all subsequent material relates and elaborates on this one topic. If there are two or more sub-topics, the next level head (uppercase Roman numerals) should be used and, conversely, if there are not at least two sub-topics, then no subheads should be introduced. Styles named “Heading 1”, “Heading 2”, “Heading 3”, and “Heading 4” are prescribed.

### For papers with more than six authors: Add author names horizontally, moving to a third row if needed for more than 8 authors.

### For papers with less than six authors: To change the default, adjust the template as follows.

#### Selection: Highlight all author and affiliation lines.

#### Change number of columns: Select the Columns icon from the MS Word Standard toolbar and then select the correct number of columns from the selection palette.

#### Deletion: Delete the author and affiliation lines for the extra authors.

# External Code

This project has within it, some code written by people not in the group. The instances where external code is used is as followed:

### The camera used in the code has code taken from an Asset Store Asset [1]. The code has been modified and adjusted for this project.

### The GUI display code for the selection box is taken from a youtube tutorial[2].

# Screenshots and References

[1] <https://assetstore.unity.com/packages/tools/camera/rts-camera-43321>

[2] <https://www.youtube.com/watch?v=iN24fuZEF_k&list=PLREj8Ib34tkYX_3ROT50Q_079sF5AqId9&index=18>