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Date submitted: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**East Riding College**

**Foundation Degree in Computing**

**ASSIGNMENT COVER SHEET**

**2018/2019 ACADEMIC SESSION**

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| **Registration University Number:**  **(Starts with year of registration eg. 200199999):**  **College Number: 20278932** | | |
| **Location:**  **St Marys Walk** | **Tutor: Phil Earls** | |
| **Module:**  **Object Orientated Programming** | | |
| **Assignment Title:** | | **Word Count:** |

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Object Orientated Programming

Specification

Kai Tindall

2020

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# Scope

The scope of this document is to provide requirements for my object orientated game. These requirements must be hit to be labelled as a success. They will encompass both requirements for the assignment and specific requirements for this game.

This document will not outline the solution design of the program. This can be found in my solution design document.

# Game Concept

The three words I have been given to base my concept around are Squirrel, Crown, and Fire.

So, my concept is to have a castle defence game where you play as king of the squirrels, trying to protect your castle against invaders, which will try to gain access to more levels of your castle (Gate, Town, Keep) by using flaming arrows. You will be able to buy upgrades from a shop menu, and be able to pick a doctrine to gain advantages.

I will be setting my development into stages in-case of time restraints, so that if I run out of time, I will still have something to deliver.

## Stage 1

Stage one will focus on the base game, by this point the player will be able to defend the gate from waves of enemies and able to buy two upgrades from the upgrade shop. Each wave will have 20% more enemy strength (each enemy unit will be worth an amount of enemy strength) and there will be at least 2 types of enemy (private, captain).

Stage one will also implement a basic requirement of a menu and a leader board. The menu will have three items to choose from (play, leader board, exit), and the leader board will track high scoring players using score generated by how much enemy strength you managed to kill. These scores will be stored on in a local xml document.

## Stage 2

Stage two shall focus on extending the map of the game, at this stage you will be able to move through to the town level. This will act the same as the gate level however it will have different upgrades. There will also be three upgrades added for the town level and an extra one upgrade added for the gate level.

## Stage 3

Stage three will focus on the doctrine aspect of the concept, this will consist of five elements the user can pick from with the first element branching out into two lines, offensive and defensive doctrine, which are both mutually exclusive of each other. Each element will provide advantages in the respective field. This stage will also add one more upgrade to the gate level.

## Stage 4

Stage four will complete functionality for the entire concept, by this stage the user will now be able to access the keep level, with a respective three upgrades available.

# Requirements

## Assignment Requirements

|  |  |
| --- | --- |
| *Id* | *Description* |
| ASS\_01 | The program shall have a menu. |
| ASS\_02 | The program shall have a leader board. |
| ASS\_03 | The program code shall use inheritance. |
| ASS\_04 | The program code shall use encapsulation. |
| ASS\_05 | The program code shall use polymorphism. |
| ASS\_06 | The program code shall be commented. |
| ASS\_07 | The program code must be written in C# |
| ASS\_08 | The program shall use the MonoGame XNA framework. |

## Stage 1 Requirements

|  |  |
| --- | --- |
| *Id* | *Description* |
| STG1\_01 | The program shall have a “Gate” level. |
| STG1\_02 | The user shall start with five archers. |
| STG1\_03 | The user shall be able to purchase more archers. |
| STG1\_04 | The user shall be able to earn money by killing enemies. |
| STG1\_05 | The program shall have waves of enemies. |
| STG1\_06 | The program shall increase the enemy strength of the waves by a set amount each time. |
| STG1\_07 | The program shall have a “private” enemy type. |
| STG1\_08 | The private enemy type shall be a ranged unit, firing flaming arrows that deal damage to the gate walls. |
| STG1\_09 | The program shall have a “captain” enemy type. |
| STG1\_10 | The captain enemy type shall be a melee unit that uses a sword to deal damage to the gate walls. |
| STG1\_11 | The captain enemy type shall be 15% physically larger than the private enemy type. |
| STG1\_12 | The captain enemy type shall deal more damage than the private enemy type. |
| STG1\_13 | The program shall wait 20 seconds after the last enemy has died before starting the next wave of enemies. |
| STG1\_14 | The user shall be able to buy two upgrades for the gate level from an upgrade shop. |
| STG1\_15 | The leader board shall track scores in a local xml document. |
| STG1\_16 | The leader board shall calculate score based on the amount of enemy strength killed. |
| STG1\_17 | The “Gate” level shall have a maximum capacity of friendly archers. |

## Stage 2 Requirements

|  |  |
| --- | --- |
| *Id* | *Description* |
| STG2\_01 | The program shall have a “Town” level. |
| STG2\_02 | The user shall be able to move on to the town level when the gate wall’s health reaches zero. |
| STG2\_03 | The town level shall have a friendly archer capacity greater than that of the gates. |
| STG2\_04 | The town level shall have three upgrades available to it in the upgrade shop. |
| STG2\_05 | The town shall have two barricades that the enemies must break through. |
| STG2\_06 | The gate level shall have three upgrades available to it. |

## Stage 3 requirements

|  |  |
| --- | --- |
| *Id* | *Description* |
| STG3\_01 | The program shall have a doctrine menu. |
| STG3\_02 | The program shall have five elements on the doctrine menu. |
| STG3\_03 | The user shall be able to pick from the offensive doctrine or the defensive doctrine. |
| STG3\_04 | Each doctrine element shall have advantages given to the player once unlocking them. |
| STG3\_05 | The gate level shall have four upgrades available. |

## Stage 4 Requirements

|  |  |
| --- | --- |
| *Id* | *Description* |
| STG4\_01 | The program shall have a “Keep” level. |
| STG4\_02 | The user shall be able to move on to the keep level when the second barricade on the town level has fallen. |
| STG4\_03 | The keep level shall have a greater friendly archer capacity than the town level. |
| STG4\_04 | The keep level shall have three upgrades available to it in the upgrade shop. |