A black background with grey leaves

Description automatically generated

Game Design Document

Computer Games Development

Final Year Project

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A grey logo on a black background

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A screenshot of a video game

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# Concepts

## Tagline

Expand and conquer the depths of the oceans, destroy all enemies, and claim resources for yourself, create an underwater empire, having a powerhouse of units and buildings.

## Details

Platform: Window’s

Target age: 16+

Ratings: Pegi 12,

## Game Summary

Set in a fantasy world in the deep depths of ocean, the player is a governor and it’s an eye soar to its neighbour, you start poor with no units only your own little base out of nowhere, eventually getting resources to expand creating more different types of buildings from refinery that collects resources to buildings that create soldiers, vehicles and flying units, these buildings you recruit different type soldiers such as infantrymen to tanks all the way to fast flying units that shoot missiles, you slowly expanding your influence across the oceans and destroying anyone that gets in the way of the player.

## Game Outline

Player starts with 5000 currency, it needs to click on its main base to open a GUI panel from there they can select form 4 building types – refinery, Barracks, Warfactory and Aircraft by building these buildings you can create units from them if you have the currency for it, building a refinery is what gets the resources making a unit harvester go fetch the resources and bring it back to deposit. Barracks you can recruit Rifleman which is a squad of entities but is 1 unit cheap to make but kind of weak, then you have the Warfactory from here you can build 3 thing harvester to get resources more, Buggy which is a fast unit and can shoot all directions so little micro-management is needed and finally Tank Aurora which is a support and debuff unit this unit heals friendly units and can charge and shoot an EMP wave at enemies which slows them down and they wont be able to move for a while. Aircraft is the last building this has 2 units first is Hammerhead this units has 2 turrets in front of its wings that deals a lot of damage but has poor accuracy.

Player can sell their buildings if they like in case, they don’t need it anymore or made a mistake creating more than the player needs. Make an army and send to destroy the enemy, whoever destroys all the buildings first wins the game.

Create your own custom map using the level editor feature and save it to a file with your custom name, in level loader you can select your custom level to use instead of the default one.

## Unique selling point

* Create units and buildings, multiple unit types and buildings of choosing.
* Level editor – design your own map, save, and load that map to play instead of the default one.
* Versatile and Fluid movement, smooth gameplay.
* Particle effects and shaders to make everything more impactful/fancy.
* Sound/Music to help improve the games.

## Similar competitive products

Command & conquer, Age of Empires

# Gameplay

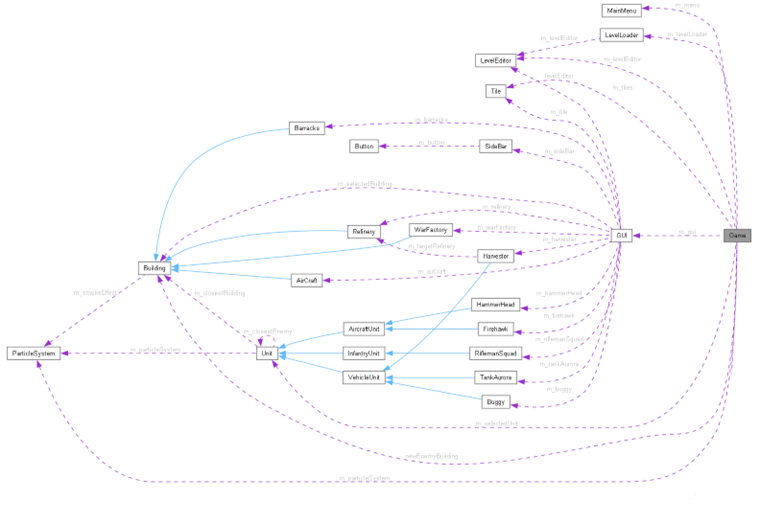
## Overview

In the current state of the project the game lasts roughly around 2-5 minutes, it can be longer but that depends if the player played RTS type of games before or is bran new to its genre then it can take longer 5-10 minutes mostly because the player needs to construct the buildings and units fast and send them to explore/attack immediately.

The game starts with player having 1 building and gradually expanding while the enemy does the same but starts with fewer more buildings than the player.

When the game ends by 1 of the sides having no more buildings you will get a Win/Lose screen which it shows some stats like the games duration, units and buildings created, and there is an option to restart or just exist the game, while still playing the game and the player needs to get off they can save and come back later by pressing the pause menu which has a save button or they can restart as well if they like.

## Game Loop



# Mechanics

## Controls

Since this is a RTS type of game there are little keyboard buttons to use and in the game itself you use more mouse for clicking the buildings/units and clicking on the GUI interface to do stuff.

GUI is used for creating or selling buildings and recruiting units.

You can press left mouse button to select and right mouse button to confirm for buildings, for units its left to select and left again to order them to go there, pressing esc button on the keyboard will de-select the unit if you have it selected otherwise it will open the pause menu there you can click on few options such as restart, save game and exit.

Debug purposes – pressing num8 will give you money and by pressing num9 it will spawn an enemy at the top left of your base.

Dragging, you can click and drag the mouse to select multiple units at once and then click somewhere on the map to order them to go there, in the level editor it works the same after clicking on what tile you would like you can click and drag to place that tile type on the map grid. You can press num1 to save the file inside level editor or press num2 to load that file and continue editing.

## Currency

After building a refinery building a harvester unit will spawn this is an automated unit it will find and go towards a nearest resource tile in the map after a while of harvesting it will go back to the refinery building and deposit to gain money, that is the only way to gain currency, build more harvesters or refinery buildings for faster getting resources.

## Combat

The combat of this game is all units do something different than each other some are non-combat units like the harvester, 1 is a support/debuff unit and the rest are used for attacking the enemy most shoots bullets but they slightly vary between units for example the buggy unit has a turret that rotates and shoots 6 bullets at a time another only has 60% angle view that only shoots that direction but has very poor accuracy and 1 shoots missiles which deals a lot of damage but takes longer to reload. You the player only order the units where to go and they do the rest.

## Health, Damage, Death, and Cost

Each unit and building have their own amount of health some have larger which it will take longer to kill some are easier, all units deal different damage amount depending on the cost of the unit, buildings also have a cost the more the cost for that building/unit the greater the value it has. If the unit no longer has any health, it will die.

## AI Enemy

The enemy starts at the bottom right corner of the map, it starts with few buildings to give an advantage to make it harder for the player to win, the enemy chooses between creating a building or a unit if it create a building it will create where it can so the view of the buildings takes account, if it wants to create a unit it will take that building if its there and create that unit form its respective building, if the building doesn’t exists then it will create that building instead.

The enemy has 3 phases that goes through first it starts to send units to explore the map, it selects all the units it has and sends them in random points anywhere on the map it takes into account of the walls so it wont send it towards a wall tile, second phase it to group up it will try to get as much units it can into a group and then the 3rd phase will start which is to attack the nearest player units or buildings and then repeats the first and third phases has a duration so it change after a certain amount of seconds.

## Level Editor

In the main menu you can find a button that opens a level editor this section you can customize your own map using the UI panel at the bottom there are 4 sections – “Walkables” which are traversable tiles units can go on it and buildings can be placed on top of it, then you have “Walls” these wont let you place buildings on and units cant go through it, then you have “Resource” tile this is where the harvester tries to find it and lastly you have “Misc” this is miscellaneous stuff so that would be like plants, trees and such for now they behave the same thing was “Walkables” tiles. After the player is finished, they can save or load a file, pressing num1 will give you the option to save the file with a custom name if the name exists already, they can overwrite it, by pressing 2 the player can load a map and edit/continue where they left off and save if they wish or just experiment as well.

# Progression

## Game world.

The player starts with 1 building with no units and the enemy starts with few buildings with 1 unit harvester already made to give an advantage, over time the player can start creating more buildings and from these buildings the player can create more units eventually expanding slowly becoming bigger and bigger having no unit to slowly making your own army.

The speed of this progression all comes to how fast the player gets the resources, the faster the resources the quicker they can build stuff, this no longer applies to the enemy to make it more difficult for the player to win the game.

# Story

## Overview

Player commands its own empire creating buildings and units, collecting resources as fast as possible, this is set on a fictional planet that the whole surface is covered with water there is no land, you the player will need to compete who owns the land, destroy your enemies.

## Narrative

Player slowly creates buildings within view and starts to expand outwards discovering new land and more resources that the player can build around, recruit new units, and send them out to discover new land or attack your enemy that is trying to do the same.

# Game Characters

## Infantry

**Rifleman** – This unit has multiple entities, each entity shoots bullets it has a short view only shooting around what’s in front of it, if it detects the enemy. When the health goes down each entity will start dying off showing the unit is slowly going to go away.

## Vehicles

**Harvester** – You can create this unit from the Warfactory or by creating the refinery building it spawns one from it, this unit immediately starts searching the resource tile if it has been discovered somewhere in the map from the fog of war, if it finds it it will go to that position the most nearest one from the harvester, when it gets there it will start to harvest this might take few a while after it finishes it will try to search the nearest refinery building if it exists if it doesn’t it won’t do anything, if it finds it, it will go to it when it gets there it will start to deposit it, it’s much faster than harvesting it but it still takes a little while to finish it, after its done it will repeat the process.

**Buggy** – buggy is used more for scouting it has a turret in the middle which it can rotate in all directions so it can be used very well for countering enemies, going around the enemy base dealing damage to structures. It shoots around 6 bullets and then reloads.

**Tank Aurora** – This is a support/debuff unit first it supports by healing friendly units it has a healing aura around the unit which glows green, in front it charges its EMP it takes a while but after it charges if it detects an enemy it will shoot out a wave that slowly expands for a while, any enemy that is hit will start to slow down until they stop when they stop it will stay like that for few seconds.

## Air/Flying

**Hammerhead** – has 1 turret each on its wing, this unit can go through wall since it’s a flying unit, it shoots very wide having poor accuracy but deals a lot of damage and no reload time, it moves like an actual helicopter, so it doesn’t turn/rotate immediately like some other turn very fast this one turns slower.

**Firehawk** – this unit can ignore walls since its flying unit, this is a bit special it keeps moving constantly, like a plane if its idle it will go in a circle at that target position and if you tell it to go somewhere it moves very fast, this unit has missiles instead of shooting bullets but it shoots in 2 phases 2 rockets and then shortly 2 rockets again then reloads, it deals very high damage but it is weaker on health.

# User interface

## Overview

This project has a lot of clicking with the mouse in the game beside just units, it has main menu, pause menu, game over – win/lose screens, level editor and load level.

## Main menu screen

In the main menu there are 4 buttons if the mouse is over any of these buttons there is an animation indicating that the mouse is over it and can be clicked,

the 4 options are:

* Play – which goes into the gameplay screen.
* Level editor – where you can customize how you want the level map to look like.
* Load Level – after saving your level in the editor it will appear in here which you can select it to use that custom map.
* Exit – exactly what you think it does, leaves the application.

## Level editor screen

In here there is a button you can click on to go back into main menu at the top left saying “back”, at the bottom you will see a panel with few buttons you can click to select what type of tile you would like to use after clicking any an animation will appear on that button indicating it has been selected and then you are free to use it on the grid map, you can click and drag to place that selected tile into the box.

## Load level screen

In here you will see a back button to go back in the top left corner of the window screen that button goes back into main menu, in the middle you see other button these ones are to see what map the player has selected more will only appear if in the level editor the player has saved their map by pressing num1 key to save. Then it will appear in here with the file name you have inputted.

## Gameplay screen

In here you can see the gameplay parts of it like the map, buildings, and units, by clicking on any building except refinery a GUI panel on the right side of the screen will appear from here you can sell a building or create new building/unit from.

# Aesthetics

To make the game feel more alive I added few extra stuffs to brighten it up like Particle effects, music/sound, and shaders all of these gives the project more appeal to stan out more and make stuff like attacks more impactful.

## Particle Effects

The game has its share of particle effects ranging from the game world to the units to attacks, in the game world there is bubbles spawning to the areas that has been explored and visible the bubbles act like bubbles so the appearance of it and the way they move in random direction while going up.

Units – some units like the Tank aurora and hammerhead have particle effects for hammerhead there is an exhaust fire coming out from its back, the missiles smoke and explosion particle effect as well when it hits a target and the tank aurora it’s the EMP charge.

Buildings – when the building have low health, they start to smoke indicating its about to be destroyed.

## Shaders

Some textures and texts have shaders on to make it look more cooler, so in the main menu the title text has a shader it’s to make it more wavy so a gold wave goes across the text and the background also has a different kind of wave giving that ocean current wave underwater, unit like the Tank aurora has a shader to make the wave energy more energy/EMP appearance. In GUI the sell button has a shader that changes colour, I also have a shader but its no longer used since I couldn’t find out what to use it on, its like a ripple effect but it doesn’t look that good on anything, so I left it as it is for now.

## Sound/Music

The project has few sounds and music’s in the game in the main menu there is a background music that repeats when its over and in the gameplay mode there is a playlist so if that current song ends another start there are currently 3 songs in that playlist, bullets and missiles also have a sound when they are shot there is a specific bullet sound for each unit.

# Inspirations

I always loved playing game that are in the RTS genre these strategic games that makes you think a lot, making a huge army and sending them out to attack are one of my favourites such as Total war series, Command & Conquer and Age of Empires. There are more the list keeps going on games like Frostpunk as well that has resource management and city builder are also one of my types.