

Maze Madness

XX.XX.2025

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# Changelog

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| --- | --- | --- |
| **Version** | **Date** | **Changes** |
| 1.0.0 | XX/XX/20XX | Initial Setup |
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# Contents

[Changelog 2](#_Toc1)

[Contents 3](#_Toc2)

[Introduction 4](#_Toc3)

[Rationale 4](#_Toc4)

[Background 4](#_Toc5)

[Terminology 4](#_Toc6)

[Proposed Design 4](#_Toc7)

[Non-Goals 4](#_Toc8)

[Software and Hardware Requirements 4](#_Toc9)

[System Architecture 5](#_Toc10)

[Data types 5](#_Toc11)

[Interface/API/Namespaces Definitions 5](#_Toc12)

[Which namespaces (Includes) did you include in your project? 5](#_Toc13)

[What functionality did each namespace provide to your code? 5](#_Toc14)

[Risks 5](#_Toc15)

[Alternatives 5](#_Toc16)

[Pseudocode 5](#_Toc17)

[System Pseudocode 5](#_Toc18)

[Evaluation 5](#_Toc19)

[Reflection 5](#_Toc20)

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# Introduction

In the TDD. Which namespaces (Includes) did you include in your project, What functionality did each namespace provide to your code.

## Rationale

/ What are you trying to accomplish? /

I want to create a game that heavily uses Nav Meshes to navigate a maze, tring to collect many items while surviving other Ai agents. A good reference on the kind of game I would want to create is Pac-Man.

## Background

/ Describe any context that would be needed to understand this document, including any considerations. For example, what is expected? What is the purpose of what your making?

Pac-Man is a arcade game that received large critical acclaim in the 80’s. It’s a game where you have to navigate a maze collecting all the pellets while avoiding the ghosts.

## 

## Terminology

/ If the document uses any special words or terms, list them here. For example, what does Agent mean? What does Area Modifier mean? This section is for terms you will use fill this in after you make your document. /

Nav Mesh – A 2D shape that defines where AI Agents can Navigate on

Agent – A component of the ai that allows them to move along a nav mesh.

Psuedocode – Writing code not in a specific language but sharing the structure.

NavMesh – A kind of mesh that tells an Ai agent where they can or cant navigate.

Mesh – A 3D object within a computer that is made up of faces, edges and vertexes (Points in 3D space.

## Proposed Design

/ Start with a brief, high-level description of the project. The following sections will go into more detail. For example, summarize what it is you are needing to make. /

Firstly, we will have a player Agent that is controlled by following where the player clicked on the screen.

Next, we have an enemy AI Agent that chases the player. If they collide with the player, the scene reloads as the player “Loses”.

Afterward, well have another enemy, but instead of directly chasing the player, It will patrol a small area by following invisible “Targets”. The player will have to navigate the area carefully to avoid collision with the Enemy.

The Goal is a Cyan orb, that when touched, will show the the text “You Win!”.

To get to the orb, you will need to open the doors that are blocking the way. To open the doors, you will need to collect the collectables scattered across the map. These include the stationary Golden Nugets and the Moving Golden Coins.

## Non-Goals

/ non-goals are stretch goals you personally have for the project; this includes anything that isn’t in the brief that you think you need to cover. /

To have an interesting Gameplay loop that makes an enjoyable experience with an engaging aesthetic, including some hand crafted models.

## Software and Hardware Requirements

/ A list of all software being used, their versions and costs, as well as the targeted hardware constraints. Considerations should include what platform are you releasing to? /

|  |  |
| --- | --- |
| CPU | 4 Cores (vCPU) |
| RAM | 16 GB |
| Storage | 100 GB SSD |
| GPU | 1 GB Dedicated GPU Memory |

# System Architecture

## Data types

/ Describe the main data types you will be using and how they work. /

Float – a number with decimals and a high range.

Int – A number without decimals.

Bool – A switch for true or false.

List – A container for any amount for a certain chosen type, with no defined size.

Array – A container for a certain chosen type, with a set size at the start.

GameObject – Referring to Unity’s Systems in editor, allowing you to edit it in

## Interface/API/Namespaces Definitions

/ Describe the various components and libraries you will be using that are inbuilt into unity. For example, GameObject, Image, SceneManagement, UnityEngine…etc. Link the Unity API Manual to show where to find information on those elements. /

### Which namespaces (Includes) did you include in your project?

### What functionality did each namespace provide to your code? `

Unity.Engine;

Allows you to use unity engine features such as using game objects in code.

Unity.Engine.AI;

This library is responsible for being able to access ai agents and its functions, such as setting an agents target destination.

System.Collections.Generic;

Systems Collection generic can give access to unique and powerful data types, such as lists. Lists are required in the game for the coins and enemy that moves around multiple way points.

UnityEngine.SceneManagement;

This Library is responsible for making it possible to restart the game whenever you collide with an enemy. Other methods would be too intensive to be reasonably feasible.

# Pseudocode

## System Pseudocode

/ Written plan of the code and how you are going to write it in English. This is where you expand from what you were given in the brief. /

Collectable script

IF the other object collided with is a collectable, delete the other object and increase the amount of collectables collected by 1.

Goal Script

If the other object collided with is the goal, delete the other object and display the text “You Win!” On the screen.

Multi Target Ai Script

Create a List of all targets on the field

Start by moving to the first target on the list

When you are at the first target, move to the next one

When you are at he last target in the list, go back to the first target.

Player Script

Move toward the part of the screen that the player clicked on.

Enemy Target Player script

Move towards the player objects current position.

# Evaluation

## Reflection

/Provide a self-reflection on your performance. /

I think I did rather well at this assessment, however I feel I could’ve done I better job at gaining a clearer vision on what I wanted this game to be. I was more focused on getting this project to pass the technical requirements rather than making an interesting game.