

AI Maze TDD

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Sun Woo Kim

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# Changelog

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| **Version** | **Date** | **Changes** |
| 1.0.0 | 28/03/2024 | Initial Setup |
| 1.0.1 | 28/03/2024 | Created the maze and NavMeshLink and added code for agents |
| 1.0.2 | 28/03/2024 | Created doors and collectables (coins and keys). |
| 1.0.3 | 14/04/2024 | Added a NavMeshModifier |

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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

Creating a working maze that follows the assignment criteria.

## Background

My purpose for this making is to pass the assignment.

## Terminology

Any terminologies used is explained in “Interface/API/Namespaces Definitions”.

## Proposed Design

AI maze that includes two doors, coins, keys that opens the doors and 3 agents that navigate through the maze to the destination.

## Non-Goals

Clean code

## Software and Hardware Requirements

Unity – Free

Visual Studio – Free

GitHub – Free

Development device - MacBook

Target platform is Windows so I will need to use a Windows device to build the game.

# System Architecture

## Data types

Float – Stores decimals.

Integer – Stores whole numbers.

Boolean – Stores true or false.

## Interface/API/Namespaces Definitions

GameObject – Any object within the game is a GameObject. <https://docs.unity3d.com/ScriptReference/GameObject.html>

Transform – Stores GameObject locations.

<https://docs.unity3d.com/ScriptReference/Transform.html>

NavMeshAgent – Contains methods that agents can use.

<https://docs.unity3d.com/ScriptReference/AI.NavMeshAgent.html>

### Which namespaces (Includes) did you include in your project? System.Collections.Generic

UnityEngine

UnityEngine.AI

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

System.Collections.Generic – Allows me to use Lists.

UnityEngine – Allows me to use Unity datatypes and methods.

UnityEngine.AI – Allows me to use Unity AI methods and datatypes.

## Risks

There is a risk of losing data if the project isn’t saved properly.

# Pseudocode

## System Pseudocode

AgentToWaypoint.cs

SET currentIndex to 0

IF distance to currentIndex in waypoints is less than 0.5

SET currentIndex to currentIndex + 1

END IF

SET agentDestination to currentIndex in waypoints

Door.cs

SET doorState to Closed

IF agent collides with door

SET doorState to Opened

END IF

IF doorState is Closed

Move door towards closedTransform

ELSE

Move door towards openedTransform

END IF

# Evaluation

## Reflection

I’ve done what’s required in the criteria but nothing more.