**Assignment 2:**

**Unity maze shortest path using (UCS, BFS, A\*, DFS)**

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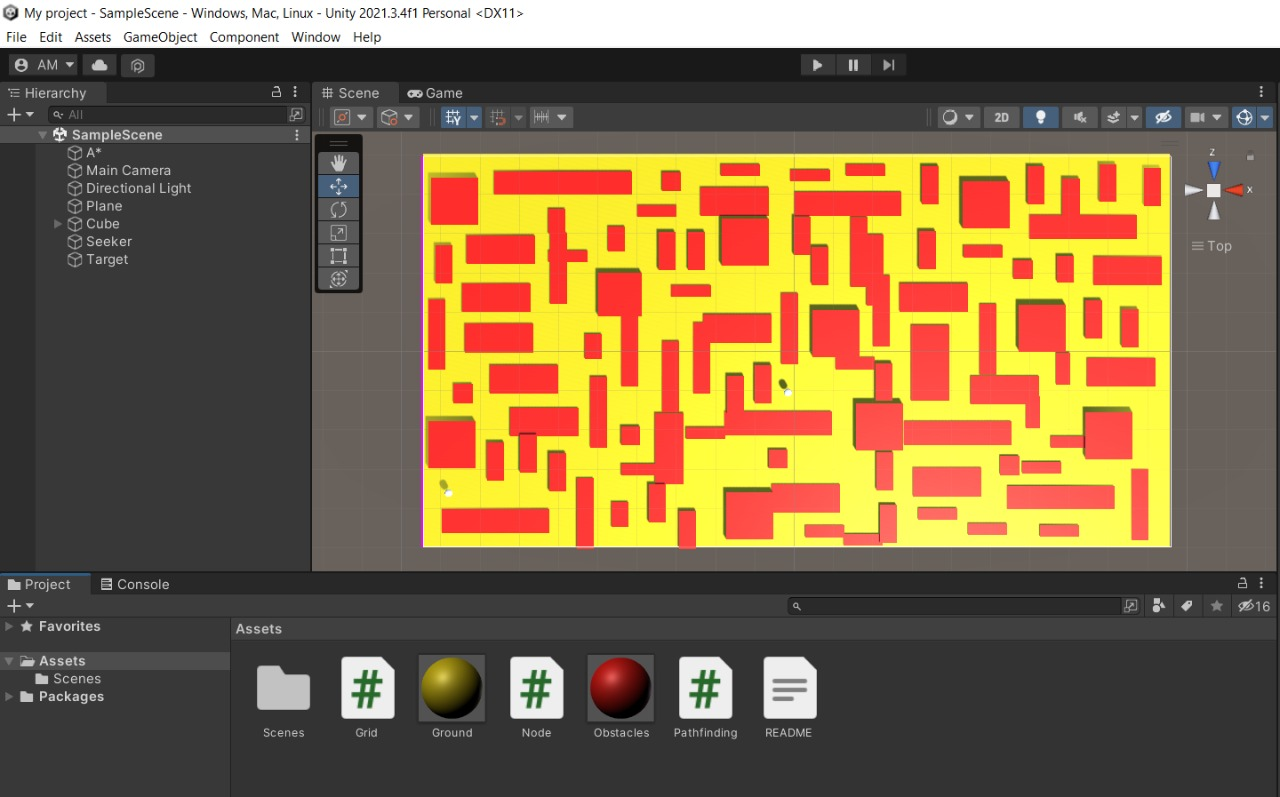
Me and my teammate Hamza Ammad have improved the code of @SebLague algorithm for finding the shortest path between a target and a start node in the Unity game engine. We have upgraded and added new algorithms to the code such as:

* A-Star-Search-Algorithm using the Manhattan distance **A\***
* A-Star-Search-Algorithm using the Euclidean distance **A\***
* Depth-First Search-Algorithm **DFS**
* Breadth-First Search-Algorithm **BFS**
* Uniformed Cost-Search-Algorithm **UCS**

@SebLague's YouTube channel: <https://www.youtube.com/watch?v=-L-WgKMFuhE&list=PLFt_AvWsXl0cq5Umv3pMC9SPnKjfp9eGW>

@SebLague's GitHub: <https://github.com/SebLague/Pathfinding>

1. The environment:

We first created our own environment with complex characteristics as shown in the figure below

1. Implementing the search algorithms

The screenshots below show the different paths using the algorithms simultaneously with different starts and goals (shown as white dots) as well in every screenshot.

* A\* Euclidian Search: White
* A\* Manhattan Search: **Red**
* Breadth First Search: **Green**
* Depth First Search: **Blue**
* Uniform Cost Search: **Black**

A screenshot of a video game

Description automatically generated**case1:**

A screenshot of a video game

Description automatically generated

**Case 2:**

