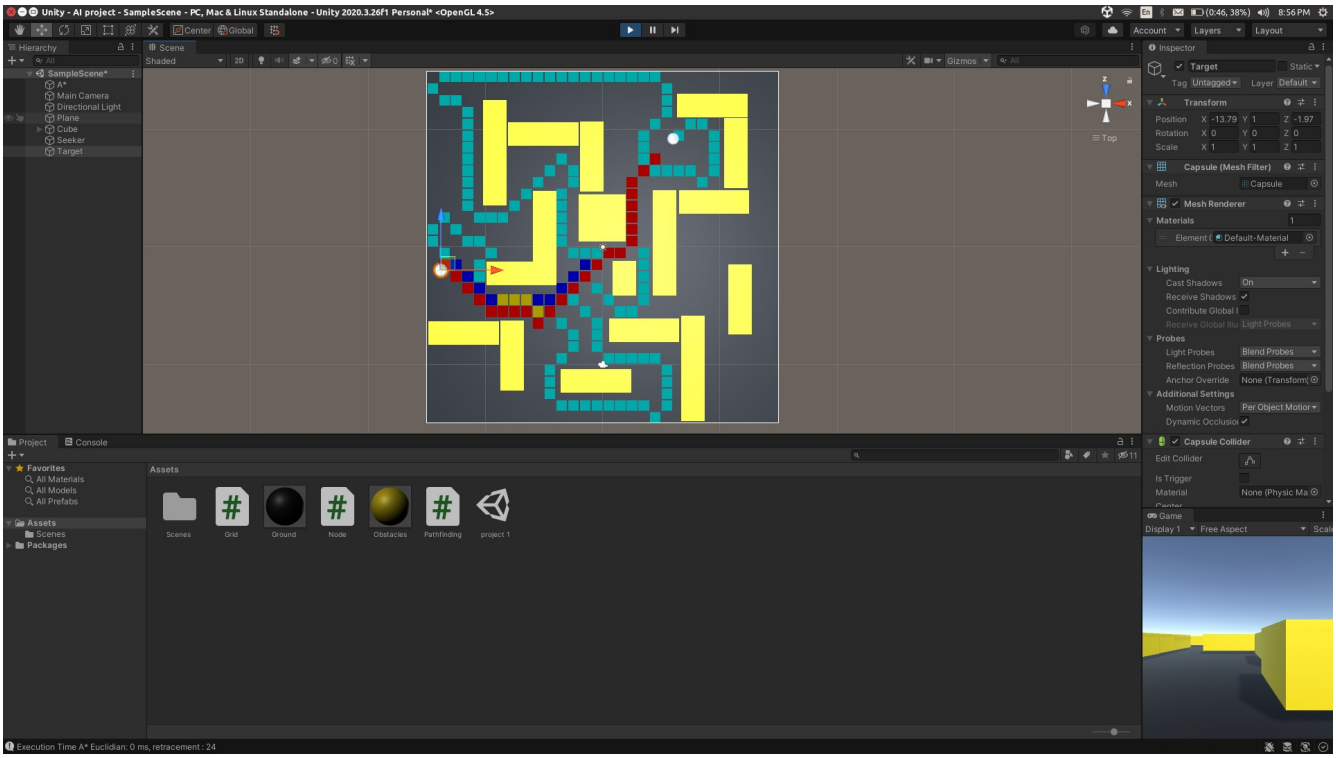
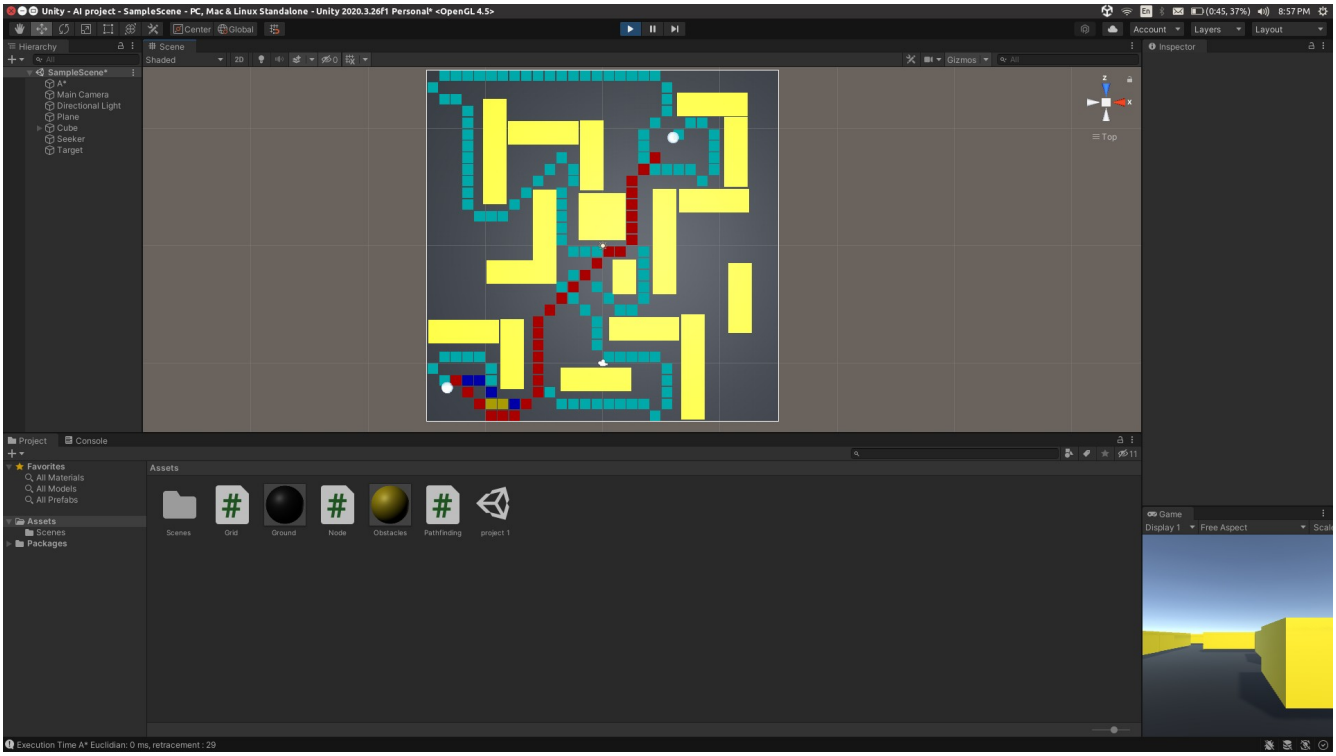
AI project 1

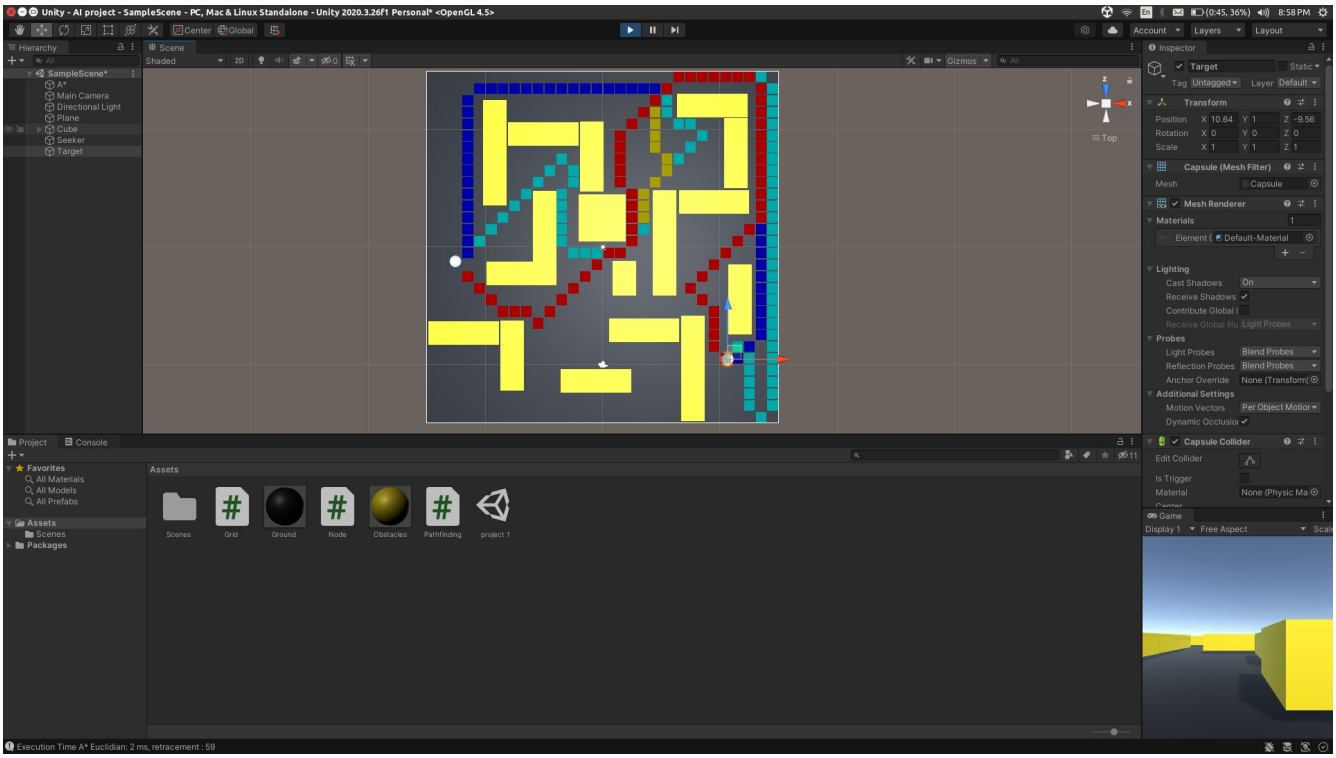
in this project, my team-mate (Achraf Ajrhourh) and I(MEHDI BOUJRADA ID:100696), will be implementing the path-finding algorithms in our project and explain them (A*, DFS, BFS, UCS) and heuristic strategies assuming these all have the same cost in all directions and A8 with different heuristic. When compiling this project using the game engine UNITY, you can see different paths found by each strategy simultaneously with different colors and the total time it takes each strategy.

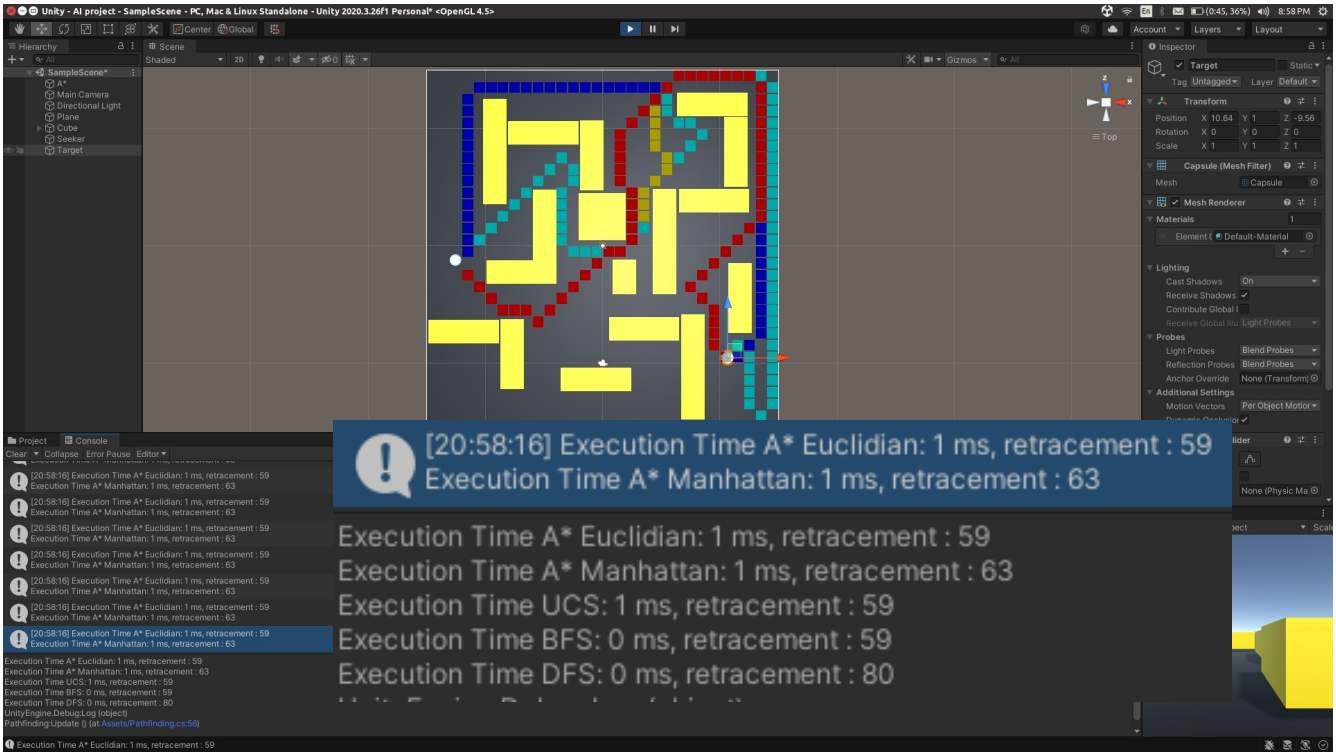
I used different colors for each search algorithm to distinguish between them:
for the manhattan path of A* I used the color blue
for the euclidian path of A* I used yellow
for BFS I used black
for DFS I used light blue
for UCS I used red.

In the simulation below, there is two objects, one is the SEEKER and the other is TARGET. Which the SEEKER must find the path to the TARGET, adding to that I will illustrate the execution time of each search algorithm while running it.




Unity - AI project - SampleScene - PC, Mac & Linux Standalone - Unity 2020.3.26f1 Personal* <OpenGL 4.5>
Hierarchy
SampleScene*
A*
Main Camera
Directional Light
Plane
Cube
Seeker
Target
Scene
Shaded
Gizmos
Top
Inspector
Project
Console
Favorites
All Materials
All Models
All Prefabs
Assets
Scenes
Packages
Grid
Ground
Node
Obstacles
Pathfinding
project 1
Game
Display 1
Free Aspect
Execution Time A* Euclidian: 0 ms, retracement : 29


Unity - AI project - SampleScene - PC, Mac & Linux Standalone - Unity 2020.3.26f1 Personal* <OpenGL 4.5>
Hierarchy
SampleScene*
A*
Main Camera
Directional Light
Plane
Cube
Seeker
Target
Scene
Shaded
Gizmos
Top
Inspector
Target
Transform
Capsule (Mesh Filter)
Mesh Renderer
Materials
Lighting
Probes
Additional Settings
Capsule Collider
Project
Console
Favorites
All Materials
All Models
All Prefabs
Assets
Scenes
Packages
Grid
Ground
Node
Obstacles
Pathfinding
project 1
Game
Display 1
Free Aspect
Execution Time A* Euclidian: 2 ms, retracement : 59


[20:58:16] Execution Time A* Euclidian: 1 ms, retracement : 59
Execution Time A* Manhattan: 1 ms, retracement : 63
Execution Time A* Euclidian: 1 ms, retracement : 59
Execution Time A* Manhattan: 1 ms, retracement : 63
Execution Time UCS: 1 ms, retracement : 59
Execution Time BFS: 0 ms, retracement : 59
Execution Time DFS: 0 ms, retracement : 80