Lesson 1
Tower Defense - Examples
Tower Defense - Examples
What We Will Use To Make Our Game
NavMesh Agents

- Built in Unity Components
- Handle pathfinding and obstacle avoidance
- Easy to use
General Setup

- Create a Unity project
- Create a map
- Create a path using obstacles
- Setup Nav Mesh
Creating the Map
Creating the Map
Create a Material to Color the Map
Drag onto Ground object
Create a Test Unit to Test the NavMesh
Add a NavMesh Agent to the Unit
An Overview of a NavMesh Agent

- Speed
- Angular Speed
- Auto Braking
- Obstacle Avoidance

![Nav Mesh Agent GUI](image)
Set up the Ground to use the NavMesh
Code the Unit to Walk to a Position on the Ground
Creating Scripts
using System.Collections;
using System.Collections.Generic;
using UnityEngine;

public class Unit : MonoBehaviour
{
    // Start is called before the first frame update
    void Start()
    {
    
    }

    // Update is called once per frame
    void Update()
    {
    
    }
}
Monobehaviour Lifecycle

- Things that matter
  - Awake
  - Start
  - Update
  - LateUpdate
using System.Collections.Generic;
using UnityEngine;

public class Unit : MonoBehaviour
{
    NavMeshAgent myAgent;

    // Start is called before the first frame update
    void Start()
    {
        myAgent = GetComponent<NavMeshAgent>();
        Vector3 destination = new Vector3(13, 1, 13);
        myAgent.SetDestination(destination);
    }

    // Update is called once per frame
    void Update()
    {
    }
}
Apply and Test the Script!
Drag the script onto the unit object.
Fix the Game Camera

- Select the “Main Camera” in the Hierarchy
- Set the Transform to:

```
<table>
<thead>
<tr>
<th>Position</th>
<th>X 0</th>
<th>Y 20</th>
<th>Z -16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotation</td>
<td>X 60</td>
<td>Y 0</td>
<td>Z 0</td>
</tr>
<tr>
<td>Scale</td>
<td>X 1</td>
<td>Y 1</td>
<td>Z 1</td>
</tr>
</tbody>
</table>
```
Create a Path with Obstacles
A Random Map I Created
Some Details

- Moved the unit to a “Start” position
- Changed the destination in script to the “End” position
- Try out your map!
Rebaking the Ground NavMesh

- Select all the geometry in the scene using SHIFT + LMB
Rebaking the Ground NavMesh
Rebaking the Ground NavMesh