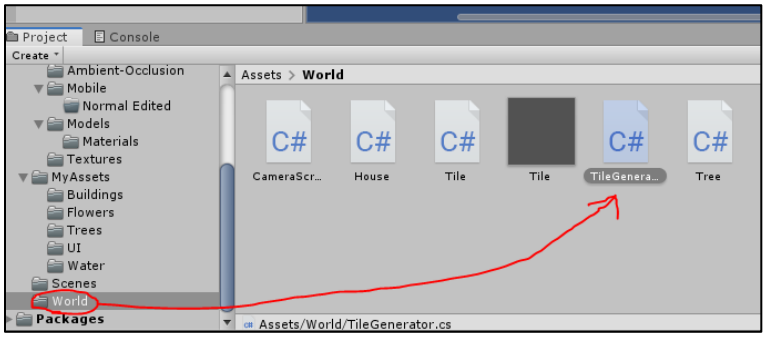
Coding with Cobalt

Project: Cobalt Village Builder

Getting Started

1. Open the CobaltVillageBuilder Unity Project
2. Students will write code in the TileGenerator.cs script, located here (double click to open):



3. In the TileGenerator.cs script, find the method called “PaintTiles()”

```
public System.Collections.IEnumerator PaintTiles()
{

    // Your world here
    // Example:
    SetTileType(2, 2, Tile.TileType.house);
    SetTileType(1, 3, Tile.TileType.trees);
    SetTileType(1, 2, Tile.TileType.trees);
    SetTileType(1, 3, Tile.TileType.trees);
    SetTileType(2, 3, Tile.TileType.water);
    SetTileType(1, 2, Tile.TileType.flowers);

    yield return Wait(0); // don't delete me
}
```

Overview

1. Intro to Procedural Generation with Cam
2. Project Live Demonstration with Cam
3. Break into Teams
4. Receive Graphing Paper / Pencil
5. Begin Worksheet:
    a. One person drives computer at a time, rotate every 5 minutes.
    b. The rest following along or designing on graph paper
    c. Project Leader indicates the challenge, only *guides*
6. Finish Up Projects
7. Students Present Creations

4. Students will replace the code here with their own code. The first number is the X coordinate, the second is the Z coordinate (up and down).

5. Once you’ve replaced the code, save the code and go back to unity. Press the play button to start the project, and then click the ! GENERATE FROM SCRIPT ! button to load your script!

Simple Challenges (use functions, make your own functions)

- Create smile face (using SetTileType method, use graph paper for help)
- Create Pizza (using SetTileType method, use graph paper for help)

```
#region Custom Shapes
0 references | James Cameron Abreu, 1 hour ago | 1 author, 1 ch
public void PaintCross(int xPos,
{
```

- See the “Custom Shapes” region in code,
  Use the “PaintCross” or “PaintSquare” methods in your “PaintTiles()” method to “stamp” the shapes into your world.

- Create Your Own shape and make a function for it.
  Then “stamp” that shape several times onto your world.

Loop Challenges

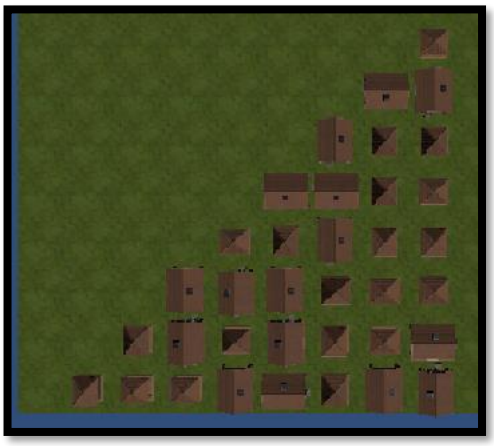
- Create a long wall using a for-loop
- Create a moat for your own house
- Create checkers board
- Create spiral
- Create steps
- American Flag

Can you come up with your own challenges?

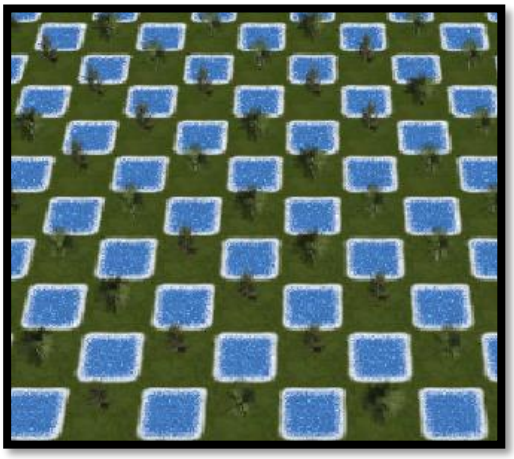
Examples

Moat (easy)

Steps (Medium Level Challenge)



Checkers Board (Medium Level Challenge)



Spiral (Very challenging!)

Seed Challenges:

1. Look at the code in the “Demo” region of the TileGenerator.cs

```
#region DEMO
```

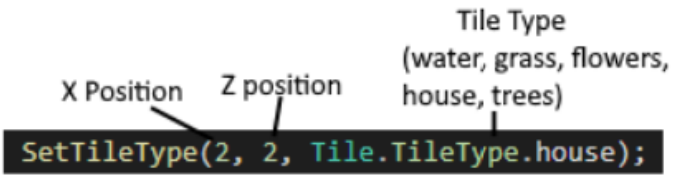
2. Also look at the **Functions and Interface Cheat Sheet**

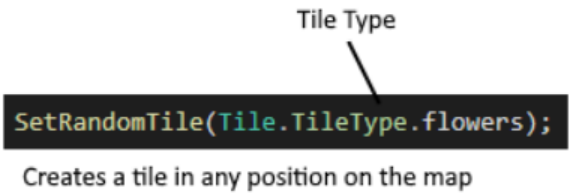
3. See how you can first “seed” an area (and give that seed a name: SeedID), and then “Grow” a seed with a certain seed name.

- Using the same “Paint Tiles” area, (or by creating your own function), try to create your own formula for generating an interesting world by “seeding” and “growing” the map.

Coding with Cobalt - Functions and Interface Cheat Sheet

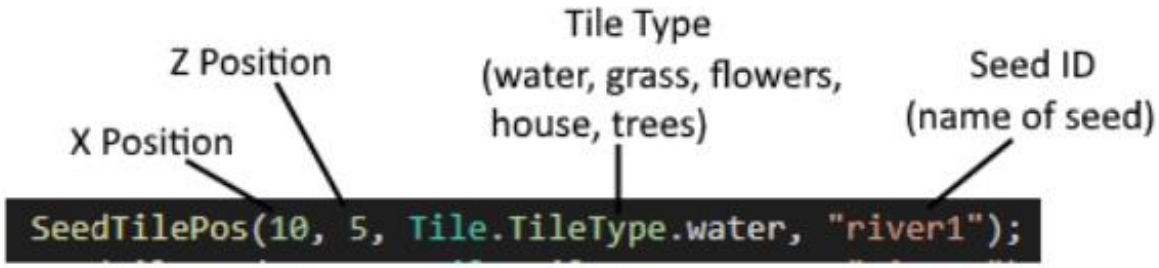
----- Plotting Tiles -----

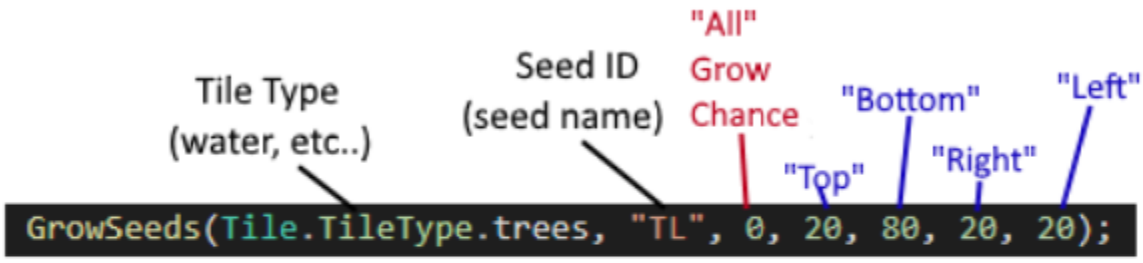




Creates a tile in any position on the map

----- Seeding Interface -----

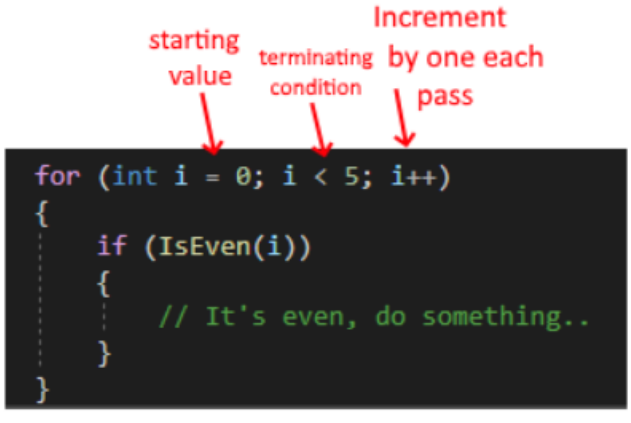


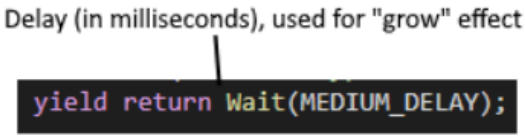


The "All" Grow Chance will determine a chance of growing in any cardinal (up, down, left, right) direction from the tile. The Top, Bottom, Left, and Right variables allow you to modify those chances per direction, which will overwrite the "All" Grow Chance for that direction.

----- Other Methods -----

Example For-Loop





Gives you a random number that you can store in a variable or use in an expression.