

## Procedural Generation Assignment #4: Diggers

[Due 04/08/2019 before the start of class]

The goal of this assignment is to give you a chance to implement and experiment with a “Digger”-based generation system similar to the one used by Vlambeer’s *Nuclear Throne*.

Since the original article is missing from the Vlambeer website, you can see a reposted version of it here: <https://indienova.com/u/root/blogread/1766>

To start the assignment, download the template project from this address:

<https://github.com/badtetris/ProcGen2019Assignment4>

**1. Open the scene named “Task1”.** Modify code in Task1Generator.cs and Task1Digger.cs to complete these tasks:

- a. **Complete the function named “convertFloorTiles”** in Task1Generator.cs to convert the default floor tiles spawned by the diggers into something that the player can walk over. How you do this is up to you, but the key idea is that the player should **ONLY** be able to walk over the floor tiles spawned by the diggers (NOTE: you are free to modify the floor tiles spawned by the digger).
- b. **Complete the function named “spawnOrDeleteDiggers”** in Task1Digger.cs to allow diggers to spawn new diggers or delete diggers. Note that having fewer diggers at once means there should be a greater probability of spawning a new digger and a lower probability of deleting a digger. Additionally, you should never have more than the maximum number of diggers or fewer than 1 digger (the generator will delete the last diggers when generation is complete).
- c. **Write code to spawn the “Treasure” tiles somewhere** in Task1Digger.cs. Where you spawn treasure tiles is up to you, but you should try to find a reasonable point of interest to spawn them (look at the reading for insight about where Vlambeer spawned their power-ups and upgrades).

[3 points]

[Task 2 on Next Page]

**2. Open the scene named “Task2”.** For the final two points, expand or mod the existing Digger generator from Task1 in some way and save your mod to this scene. How you mod it is up to you, but your goal should be to make something neat. Here are some **suggestions**:

- Create a game out of the digger levels. Make a mechanic and a way to complete the levels.
- Create a game out of the operation of the diggers themselves. Perhaps the game features two phases where you first carve out a level and then you or another player has to navigate it.
- Run multiple diggers at once to create a multi-tiered level that you can then navigate as the player.

**[2 points]**

**[Total: 5 points]**