

MULTIMEDIA TECHNOLOGY COURSE

- 2023 -

Laboratory work #2	Conway's Game of Life using Unity
Handed out	02.03.2023
Due	06.04.2023

ASSIGNMENT

TASK 1 *Install Unity on your device*

Before starting to work on Conway's Game of Life, you need to have the Unity software installed on your device.

Follow the steps below to install Unity:

1. Go to the Unity website at <https://unity.com/>;
2. Click on the – *Download Unity* – button on the homepage;
3. Choose your operating system and download the – *Unity Hub* – on your device;
4. Open the Unity Hub installer and follow the instructions to install Unity Hub;
5. Once Unity Hub is installed, open it and create a Unity account;
6. Select – *Installs* – from the left-hand menu and click on – *Install Editor* –;
7. Select the version of Unity you want to install and click – *Install* –;
8. Choose the modules you want to include with your installation;
9. Click – *Install* – to begin the installation process;
10. Once the installation is complete (this could take quite some time), you can launch Unity and start working on your Conway's Game of Life project.

** NOTE: For a new project, it's generally recommended to use the latest stable version of Unity available at the time. This will ensure that you have access to the latest features and improvements, as well as any bug fixes that have been addressed. **The newest stable version is 2021.3.15f1**, so I'll advise you to use this one, however you are free to choose whichever version works for you.*

TASK 2 *Implement Conway's Game of Life and explore its properties using Unity*

GRADE	TASKS
10	Present feedback for your game.
9	Run the simulation for several generations and observe the behavior of the cells in the modified zone compared to those in the rest of the grid as well as how your new rule behaves.

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	<p>Analyze and compare the behavior of the cells in the modified zone to those in the rest of the grid. How does the modified rule affect the growth and survival of cells in the modified zone? Are there any emergent behaviors or patterns that arise as a result of the modification?</p> <p>Document your observations and analysis, including visualizations of your findings in a PDF file.</p>
8	<p>Modify the standard rules of Conway's Game of Life by creating at least one zone in your grid where a specific rule manifests differently than it would normally:</p> <ol style="list-style-type: none"> 1. Identify at least one zone in the grid where a specific rule will be modified. 2. Modify the code to apply the new rule in the designated zone while maintaining the standard rules for the rest of the grid. <p><i>Examples (for inspiration):</i> <u>"Friendly Neighborhood"</u>: Create a zone in your grid where living cells with fewer than two living neighbors do not always die from underpopulation. Instead, they may survive if there are other living cells nearby.</p> <p><u>"Deadly Zone"</u>: Create a zone in your grid where living cells with three or more living neighbors always die from overpopulation.</p> <p><u>"Barrier Zone"</u>: Create a zone in your grid where the standard rules of the game do not apply. For example, living cells may only survive if they are adjacent to a specific type of cell, or dead cells may only become alive if they are surrounded by a certain number of living cells.</p>
7	<p>Identify at least one new rule that you would like to implement in the game of life. These rules can be modifications of the standard rules, or completely new rules that introduce novel behaviors to the game.</p> <p>Implement your new rule/rules in the code for the game of life.</p> <p><i>Examples (for inspiration):</i> <u>"Exploding Cells"</u>: Modify the rule for living cells with three or more living neighbors so that they explode into four new cells, one in each cardinal direction.</p> <p><u>"Reversing Time"</u>: Create a new rule that causes the cells in the grid to "reverse" their behavior every n generations. For example, living cells may become dead, and dead cells may become alive.</p>
6	<p>Your program should allow the user to input the initial configuration of the grid, run the simulation for a specified number of generations, and display the final configuration of the grid.</p>
5	<p>Implement the standard rules for Conway's Game of life:</p> <ol style="list-style-type: none"> 1. A living cell with two or three living neighbors survives to the next generation; 2. A living cell with fewer than two living neighbors dies from underpopulation; 3. A living cell with more than three living neighbors dies from overpopulation; 4. A dead cell with exactly three living neighbors becomes a living cell by reproduction.

TASK 3 Upload your game on <https://itch.io/>

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1. Enter the Game Jam: <https://itch.io/jam/328901/preview>
2. Make sure to export your Unity file as a HTML5 and publish it on:
<https://itch.io/jam/328901/preview>

RULES

Teamwork

You must work in teams of 4-5 people.