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Q3. What device does the user need to launch the application?

Desktop Computers and Laptops are the only devices supported by the application

Q4. What are the general goals of the simulation game?

- The user must level up their cell by consuming energy.
- One of the main goals in the game is to evolve into a more complex cell.
- The cell the user controls must adapt to the in game environment with the help of skills.
- The user should complete the Main Quest and it's Sub Quests in each stage.
- For the user to learn concepts of cell evolution through gameplay.
- In each stage clear, the user must reach a certain score in a quiz to proceed to the next stage.

Interactive Simulation Game for Teaching Cell Evolution

An Undergraduate Thesis

Presented to the Faculty of the Faculty of the College of Information and Communications Technology

West Visayas State University Luna St. La Paz, Iloilo City

In Partial Fulfillment of the Requirements for the Degree Bachelor of Science in Information Technology

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DISCLAIMER

This application project and its corresponding documentation titled “AN INTERACTIVE SIMULATION GAME FOR TEACHING CELL EVOLUTION” is submitted to the College of Information and Communications Technology, West Visayas State University, in partial fulfillment of the requirements for the degree, Bachelor of Science in Information Technology. It is the product of our own work, except were indicated text.

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FAQ (Frequently Asked Questions)

Q1. What is “An Interactive Simulation Game for Teaching Cell Evolution”?

An Interactive Simulation Game for Teaching Cell Evolution is a simulation type game that aims to simulate primordial cells, the prehistoric environments they lived in and events that lead the cells to adapt and evolve into what they are now in the modern world., It is a simulator game that would educate people more about what the common peopleknow or currently think about cell evolution.

Q2. Who is the intended user for the application?

People with less knowledge about cell evolution. The individuals can use the system to have an interactive and efficient way of learning and understanding the different ways a cell can evolve.

To the students in High School or College level that are interested in the different ways a cell evolve and how they can survive in different environments. This will help them in studying and learning specific and complex topics of cell evolution.

Biology teachers may use the system as a tool for teaching cell evolution. The game will provide necessary information about the different ways a cell can evolve, the requirements it needs to evolve, and their evolutionary paths.

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GUIDE FOR DEPLOYING AND USING THE SYSTEM'S MAIN FUNCTIONS

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Introduction

Cell Evolution is a difficult topic to discuss leading to poor knowledge and low interest in the subject. Its complexity and need for deep understanding of the topic makes learning quite difficult and the same could be said to teaching it. Furthermore, not everything is known for certain about the subject, hence, an alternative way of teaching the topic is considered through games.

This document provides an application manual for the user on how to use the application and what are the system requirements for the application to run properly.

System Requirements:

- OS: Windows OS 7 or Later
- Processor: Dual Core 64bit Processor or Higher
- GPU: Integrated GPU with 1GB VRAM or Higher
- RAM: 2GB of RAM
- Storage: 200 MB or More
- Connectivity: The Game can be played offline
- Controls: Mouse and Keyboard

Troubleshooting for Fixing Possible Bugs for the Mobile Application

1. Possible Bug (After finishing a single play through of the simulation game, starting a new game may introduce bugs and glitches that could lead to certain mechanics of the game from not working properly).

Ways for fixing the bug:

Step 1: Exit the Game.

Step 2: Relaunch the Game to reset memory and cache that could lead to problems.

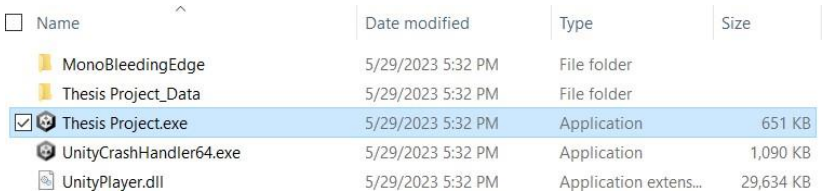
Stage 4

Stage 4 will also deplete your health points similar to the previous stage if your cell did not unlock a certain skill, so eat as many food as possible. Additionally, your end goal will be at level 20. So survive all to the end to finish the game.

Usage

Installation of the Application

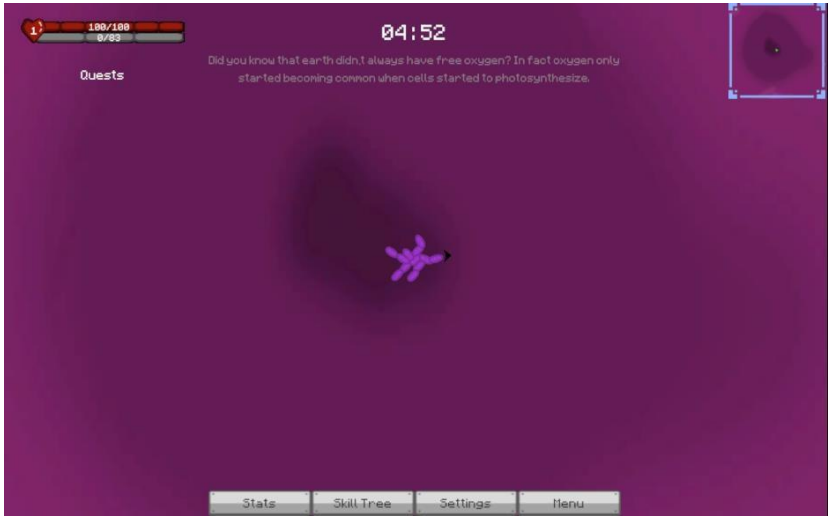
1. Download the Cell Evolution Game and begin the process of installation.



Game Guide

1. The **Main Menu** Screen of the Game shows different buttons that redirect to different screen of the game.

Stage 3



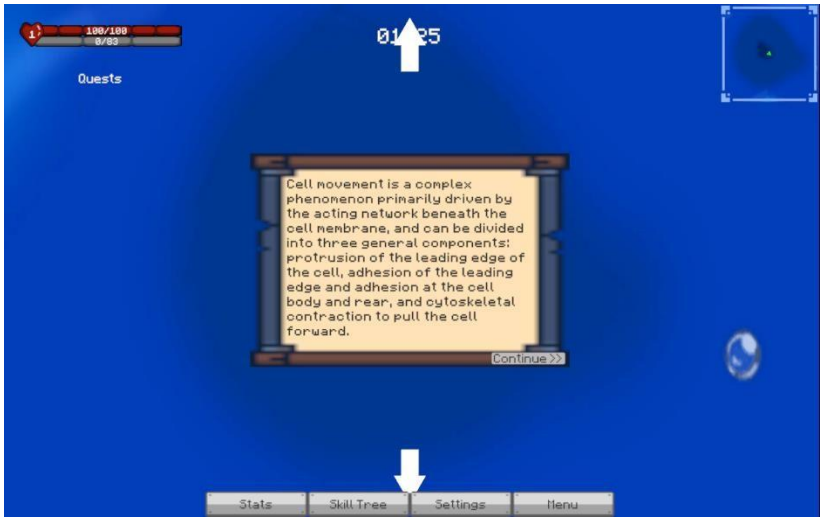
Stage 3 is where the oxygen revolution occurs. In this stage, depending on your cell's current evolution and skills, your health points will deplete gradually. Furthermore, the stage has a timer that you will need to survive in to proceed to the next stage.

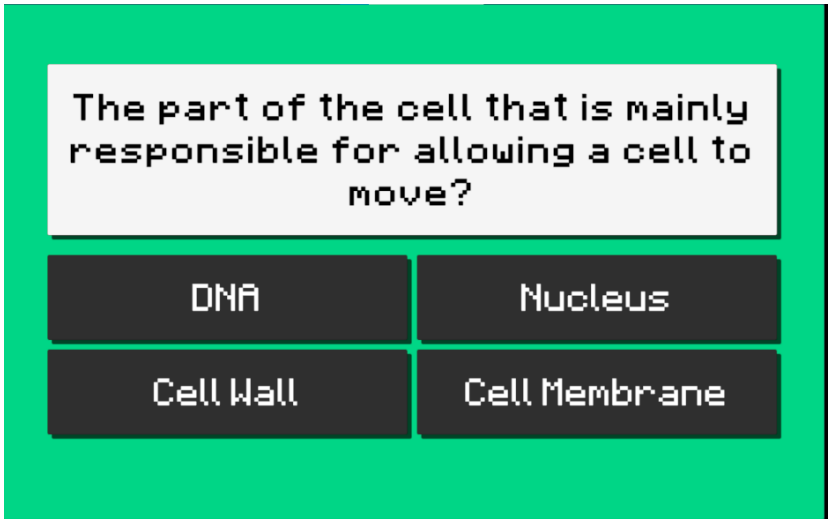
Stage 2

After your cell's first evolution, Stage 2 will start. In this stage, your goal is also to survive and reach level 20. You can level up to acquire skill points and unlock skills that may help your cell in the next stages. At a certain level, your cell will undergo another evolution.

2. Tutorial Stage

Click the **tutorial button** to start a tutorial stage that will teach the user the controls and basic mechanics of the game with gameplay.





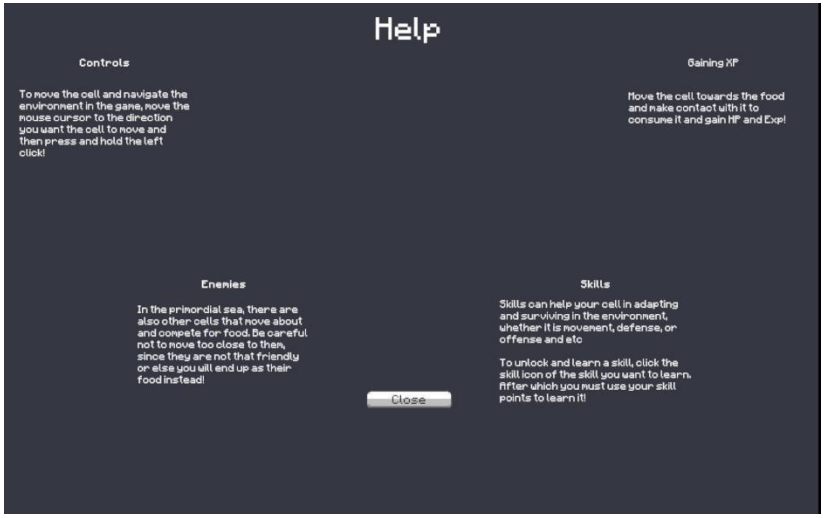
After finishing a stage, a quiz will appear. It will have 10 questions related to cell and cell evolution. If the score is below a certain number, the game will restart at the beginning of the stage so make sure you to read up on the tips and flavor texts found in stage.

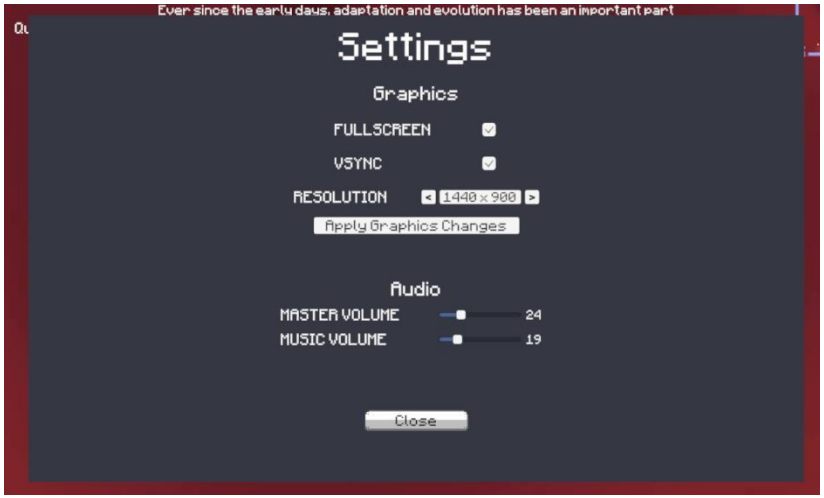
3. New Game

Click the **New Game** to start a new play through of the game.

4. Help

Clicking the **Help button** will show the user the controls and basic mechanics of the game.





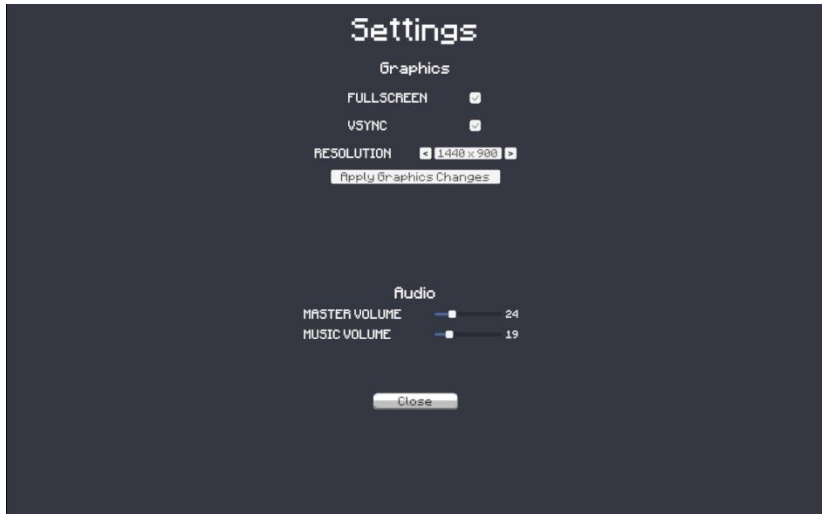
The Settings button allows the user to configure the resolution and audio of the game.

If the user presses the menu button, this interface will pop up. The player has a choice whether they will continue to play or exit the stage and return to the main menu.

This interface shows the skill tree of the cell. The user can pick whatever skill they want. Skills can increase the cell's HP, Speed and Defense. There are also skills that will have certain effects that can help the cell survive even better. Some skills will be unavailable depending on the cell's current evolutionary path so make sure you choose your next evolution wisely.

5. Settings

Click the **Settings** button to configure volume, resolution changes and vsync function.



6. Quit

Clicking the **Quit** button exits the game.

The Status Screen shows the stats of your cell. It also provides the cell's background, cell name, and your accumulated score.

The Gray Bar represents your experience points. As you eat food and energy, you level up and acquire experience points. Skill points can be used to unlock Skills that can help your cell survive longer in the environment.

Main Game

Stage 1

The Stage 1 is the 1st stage of the game. In here you take control of a cell trying to survive on its own.

In Stage 1 you have to consume energy to heal and level up. Level ups give you Skill points to unlock your skills in order to strengthen your cell.

The red bar indicates your health points. If an enemy cell makes contact and attacks you, your health points will decrease. But do not worry as if you consume food enough, you can recover your missing health points.

An Interactive Simulation Game for Teaching Cell Evolution

User Manual

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