**Design Brief**

General Specifications

The topic of the game will be the trees of a rainforest and their creation of the tree layers for geography. The game will involve dragging plant food, water, seeds and other various requirements for a tree to grow. The tree will grow and when fully grown, the tree will align with labels that display which part of the tree is part of which part of the tree layer. The tree will then move into the background and the next tree will be grown, this will create a cycle that will lead to the creation of a rainforest. The audience of this project will be year 8s as they study rainforests in geography and science and as it is a simple but easily replayable game, it creates a non-challenging but educational environment for them.

The project will be created in unity 2D as it is more simplistic for a user to understand and allows for a more realistic scope for an educational game. The game will be a reasonably small size so that it can be run on a computer with low processing capabilities in order to attempt to make it available to all members of the public.

Design Specifications

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| What will the system’s input be? What output should the system produce? | The system will require an input of mouse clicking and dragging in order to output the response of moving objects that will assist with progressing within the game and initiate sequences of events. |
| Will these requirements change? How seriously? How often? | The requirement of creating a game aimed towards educating a yr 8 audience will not change significantly as the game is planned to meet these expectations. |
| Will the system grow? In what directions? | The system has the potential to grow after completion in the methods of portraying the educational content of rainforest tree layers as the game development process continues. It may allow for extended features such as the ability to use a keyboard to move items. The system also has the potential to be transformed into a rainforest simulation. |
| What sort of people will use the system? Can they be specially trained? | The system will not require specific training to use although a background understanding of basic concepts such as what a rainforest is, or what a tree is, will be required to understand the system. |
| Will there be errors in input or in stored data? How should errors be fixed? | There may be unintentional errors regarding the system's input to move objects that could cause the objects to be immovable or not interact with surrounding objects as expected. Errors could be encountered within stored data in the form of the size of the forest reaching a limit or the progress of tree growth not being registered, leading to an ungrowable tree. These errors would be fixed by reviewing the code through the use of methods such as desk checking to locate the issue and then changing the code or troubleshooting the issue if it cannot be fixed. |
| What kind of equipment is available? What can be obtained? | The equipment available is the use of a school computer with a keyboard, mouse, monitor and Unity installed when at school. At home, the correct version of unity would have to be installed onto a computer in order to continue the project. |
| How fast should the system work? How reliable does it have to be? | The system should function at high speeds as it will be a simple game with few elements and the computer would not require much processing to take place in order to function. The system is supposed to be reliable enough to be consistently used without major failures. This should be achievable as although I am relatively inexperienced, the scope of the project seem small enough that it will be within my limits. |

Requirement Specifications

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| It must state the specific abilities of the system - the commands that will be available to the user. These are the system's **functional requirements.** | The user will have the ability to drag items when playing the game and the ability to click buttons in menus in order to make selections regarding playing the game, adjusting the game and quitting the game. |
| It has to specify the assumptions that will be made about the system’s input, users, response time, data - its **operating environment.** | The system must be able to receive inputs of mouse clicks and drags in order to interact with the game. The users will be year 8s who will likely understand how to use a computer and will not require a powerful computer to get a quick response time as the game will be simplistic. |
| It must define the **system’s limitations** - how many users will there be, how much data needs to be handled, etc. | The systems limitations will likely not be tested as there will be little amounts of data being processed, the main data to be handled will be whether or not an item is in place in order to initiate events. The system will only need to be able to handle one user at a time but the game itself may be used across many systems in separate entities as its simplicity should allow most systems to run it. To desk check the system though, something such as the tree amounts could be tested with various amounts to understand what happens if there are more than expected to be layered on screen. |
| It has to describe any special **hardware requirements**, or any restrictions imposed by hardware limitations. | The hardware required for this is a mouse, monitor and a system capable of installing and running unity 2D. As the game is small, the majority of systems should be able to run it, meaning a powerful system is not required. Although there will be limitations in access to individuals that are unable to use a mouse for whatever reason as it will not be compatible with any other form of hardware for input. |
| It must specify possible **modifications to the system** that have to be allowed in for the system’s design | The systems only modifications required will be the installation of the version of unity that the game runs off of in order to use it. |
| It should describe the nature and **extent of documentation** that will accompany the system. A preliminary user’s manual may also be required. | The documentation accessible to the user with the game will be a user manual that explains how to use and play the game in order to help the user when needed. The game will also have instructions (a tutorial) to direct the user how to use it within. |

Gantt Chart

