POLITÉCNICO DE LEIRIA

Games and Multimedia

Practical Assignment 1

Authors:

Inês Pombinho – 2202242

David Santos – 2202226

Professors:

Ricardo Antunes

Roberto Ribeiro

Luís Monteiro

Course:

Introduction to Programming

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1 Implemented Algorithms

1.1 Random Bubble Spawning

This feature was implemented using a box collider. The collider bounds would serve as a space for the bubbles to spawn. Only the X value was needed for the collider so the value was taken in the beginning using the Awake method, this way the bounds value cannot be altered in code while it runs but, in this case, it didn't seem necessary to add such feature.

1.2 The Box

"The box" has a special feature as in when activated it must warn certain objects to do certain actions. The solution we used for it was to create an interface called "BoxReferenced" and make all the objects we wanted to inherit from this interface. On their individual Awake function or start they search for "Box" objects and give their references to them for later use.

1.3 Portal Teleporting

When the player enters in collision with the portal it is teleported to a random portal added in the destinations of said portal. At the start each portal checks if its not referencing itself as a destination, this is done in our case using Linq, we create an array that is the same but without the reference to itself.

The check if all portals are used is also called in the teleport function. If a portal is used a variable will become true and then a function in the GameManager is called. This function checks if all portals are with said variable set to true. If the answer is yes, the level changes.

1.4 Contact Areas

These game bonuses were made simply using the OnTriggerEnter and OnTriggerExit, yes, we could have used OnTriggerStay but the reasoning is explained in section 2. There is a base class for these areas and each derive from it.

2 Reasoning behind the options taken

2.1 Random Bubble Spawning

The use of the collider was due to it being the simplest way to determine an area in which the bubbles would spawn randomly, sure we could make a list of transforms and select each randomly but this way its much simpler as we just need to get the x value of the collider and use Random.Range to get a value between that X and -X;

2.2 The Box

The use of the interface was to make things dynamic, this way the box script does not need to be altered every time I want to make a new object do something when the box is activated or deactivated. Its much simpler to use an interface on every object I eventually will need.

2.3 Portal Teleporting

To avoid infinite teleporting each portal has a teleport point assigned to it, this way the player will not trigger every portal once teleported to it. The use of LINQ was also for simplicity's sake as it was not a complex operation.

2.4 Contact Areas

The reason as to why the OnTriggerStay event is not used is for complete control of the speed at which the effect is applied, this way each area can have a different time for their effect as opposed to a universal standard value.

3 Implemented Features

All the features required in the practical assignment corresponding to this evaluation were fulfilled completely.

4 Bibliography

During the development of this work, the following references were consulted:

- https://docs.unity3d.com/560/Documentation/ScriptReference/EventSystems.ISelectHandler.html (Unity Interface ISelectHandler)