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Games and Multimedia

Practical Assignment 1

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Course:

Introduction to Programming

# Implemented Algorithms

## Enemy Detection (for all systems)

This feature implemented using colliders and Enter Trigger / On Trigger Stay event. Biters and Enemies are tagged differently and with different physics layers as well, in order to not trigger events unnecessarily.

## Alert System

The alert system was implemented using a reference to the main script and when the collision is triggered the parent script is warned and will activate the panic routine. If the enemy is already alert nothing will happen.

To implement this feature…

## Enemy Base Behaviour

All enemies including biters have this component. It is the base for movement and for wall detection. This component holds references to the AlertSystem, BiterBehaviour and EnemySocial.

## Enemy Social

This component is only active when the enemy state is set to normal. Whenever an enemy meets another non-biter enemy with the OntriggerEnter2d, it will check for

## Biter Behaviour

This component adds all aggressive behaviour to the enemy. When active the component will react to “OnTriggerEnter2d” events and will call the bite function.

## Biter Selection

The biters are selected at random during the start of the game, a timer is also set repeating the same selection every 30 seconds or so. This value is editable on the editor.111

# Reasoning behind the options taken

## Enemy Detection (for all systems)

The events “OnTriggerEnter2D” and “OnTriggerStay2D” were used as means to detect when to attack and when to be alert, this because we felt that it was the most efficient way to do it. An alternative would be to have a coroutine and check on both left and right sides at a given time but, in the end, we ended up using these events for simplicity sake. The fact they were in different layers made the need to have the “OnCollisionEnter2D” event and to have a check “if collision.compareTag(“Enemy”)” in order to ignore collisions but still allow the OnTriggerEnter2D to work.

## Alert System

The alert system is a different component that is activated when the enemy is on a Normal state. It holds a reference to the mean enemy base script and when the alert state is triggered it will call a function named “SetAlert”, a timer is set to call the function “CalmParent” returning the enemy to its normal behaviour.

The reason as to why the enemy does not run the alert routine if he’s already alert is to prevent situations in which he would just be flipping infinitely due to having two biters on each side or having a biter and a wall on another side.

## Enemy Base Behaviour

The base component for enemies involves the base checks for ground, walls and movement. This component also has the references to all the other components, having the needed functions to change the enemy mode when necessary.

# Implemented Features

(If all features are completed…)

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

(If there are features left to do…)

## Partially Implemented Features

The features that were partially implemented were:

* Feature 1
* Feature 2
* …

## Features Not Implemented

The features that remained to be implemented were:

* Feature 1
* Feature 2
* …

# Bibliography

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

* Sams Teach Yourself Unity Game Development in 24 Hours, Meik Geig (Example)
* https://unity3d.com/pt/learn/beginner-tutorials (Example)
* YouTube channel of the user [username] (video URL)