**Game development technics**

**Professor ----- -----**

**Report nº1**

**“Nion”**

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**Introduction**

This semester, for the Game Development Techniques course, we were asked to make a game. The group had the idea of creating "Nion", a puzzle platformer, to apply the knowledge taught in the proposed practical work.

Thus, this report describes the process of developing the game until the moment of the first phase of evaluations.

**Development**

For the first assessment phase of the course project, the group developed the first level of the game, with the existence of the basic mechanics of the character's movement, that is, the general movement and the jump, rudimentary mechanics of the boomerang, that is, firing it either to the right or to the left and describing the typical movement of the boomerang, using mathematical functions.

In addition, there are mechanics of interaction with enemies, in which the player loses life by touching it, which is quantified by an HP bar.

**Difficulties**

During this first phase of development, the difficulties centred mainly on the camera and collisions with tiles.

Regarding the camera, the problem centred on the division of moments with and without the need for it, that is, in situations such as the start menu or the pause menu (the latter not yet implemented), where there is no need for a moving camera, because the image must be static, and in the game itself when the camera has to follow the main character.

As for collisions, there was a bit of a "collision" of concepts when it came to tiles and the map itself, since class inheritance was not being used, which greatly facilitates the process of forming different maps for different levels without having to change a large portion of code every time details needed to be changed.

Process

After completing the GDD and having our idea of how to form the game, we started by creating a simple platform, gravity, and spawning Nion. We created movement and jumping; however, we had issues with collisions. Sometimes the character would pass behind the platforms and fall.

After solving the platform's problem, we created an enemy, NPC, that would walk backwards on top of a platform when it collided with Nion, it would die. However, we wanted Nion to have 3 "lives", meaning he could take three hits before dying. To do this, after he took damage, he would stay a few seconds without taking damage so that he wouldn't die instantly.

The remaining steps for the first phase were to create the map, implement the camera, fire the boomerang, and create a menu.

For this first phase, we managed to set the boomerang to be shot sideways (in the end we want it to shoot up and down to create a kind of "double jump"). The boomerang when thrown forwards loses speed, and then returns to the player, updating its height as Nion does.

We then decided to create a small menu, which in conflict with the camera, was giving several errors.

The map we created using a programme called "Tiled” and moved on to Monogame with quite a bit of difficulty. After much trial and error, we managed to get the map functional enough for Nion to play but gave up on Tiled.

The camera was another difficult piece of code to implement, and as mentioned before, conflicted with the map and menu.

In the end, we managed to fix the main bugs to have a working game in this delivery.

**Extra work made**

**The following was made for the final project but might not be present in the build found with this document**.

For the final phase we want to make more levels and bosses, improve the menu by making a settings page and another one to choose the levels, create a soundtrack and improve the art and sprites.

The most complicated part will be to make the double jump. As already explained in the GDD, Nion will have to jump and send the boomerang down to get a boost up, creating a double jump feeling. When he is on the ground, he will not be able to send the boomerang down, so it will be another obstacle for the programming.

As a "bonus" we would like to add secret passages, where the player will pick up "tokens". These tokens would be just an achievement for players who like to explore the whole game and would not influence the main gameplay.