**Tower Defense VR**

**- Team 4 –**

***Description:***

The objective of a tower defense game is centered around a maze. While enemies spawn at the entrance, your base sits at the exit of the map. The player must defend the base at all costs from the oncoming enemies, as they spawn in waves and make their way through the maze and towards their objective: the player’s base.

To do this, the player has different turrets at his disposal, which he can place on top of the map’s walls. Each turret is different, and there are many paths that the minions can choose to take, so the player must adapt quickly to each situation.

Each enemy is also different. Some are slower but have more health points, while others are faster but more fragile. Each monster carries an initial number of score points, but the enemies become stronger and faster as the waves go by, meaning their score is also upgraded. The player must try to get as many points as he possibly can, before he is overwhelmed by the enemies and eventually loses.

***Main Game Components:***

1. **Maze Map:**

* features several paths, which cover the whole map area;
* features special walls, on which the turrets can be placed;

1. **Enemy Minions:**

* consist of three different types (slow & tanky, balanced, fast & fragile);
* get stronger on each wave (more HP and faster movement speed);
* have a fixed score which increases with each wave;
* each wave uses a (initially) fixed probability to choose a path, which increases the other probabilities, while decreasing that of current path;
* their HP is represented by the bar above their heads;

1. **Turrets:**

* consist of four different types:
* Small Cannon (20 Money) – medium damage, medium range, medium fire rate;
* Big Cannon (30 Money) – medium damage, big range, medium fire rate;
* Scout Turret (40 Money) – lower damage, medium range, high fire rate;
* Cannon Turret (40 Money) – high damage, lower range, lower fire rate;
* can be placed on map’s walls;
* will shoot enemies who come in their range (range is visible);
* projectiles have different speeds (small & big cannon – medium speed, scout turret – high speed, cannon turret – lower speed);

1. **User Interface (Menu):**

* offers access to buttons for the player to buy turrets;
* shows the current wave, current money amount and current score;

1. **Base (a.k.a. Nexus):**

* its HP is represented by the bar immediately above it;
* enemies who reach the base disappear but deal damage to it;
* when its HP reaches zero, it is destroyed and the Game Over screen pops up;

**Team Members & Tasks**

***Andrei Nicolaescu:***

* Team Leader / Coordinator (i.e., managing tasks, supervising development, offering support and upgrading game components when necessary);
* Game Balance (i.e., ensuring that the game can be played without it being too simple or too difficult);

***Adrian Prutianu & Alexandra Tudorache:***

* Turret Design (i.e., managing turret types, appearance and scripts);
* Enemy Design (i.e., managing enemy types, appearance and scripts);
* Spawner Design (i.e., managing spawner mechanics, wave mechanics and corresponding scripts);
* Nexus Design (i.e., managing nexus appearance and scripts);
* UI Design (i.e., creating first iteration of the game menu);

***Murgu Vlad:***

* Environment Design (i.e., building the map, managing textures of environment elements etc.);
* Special Effects Design (i.e., adding particle effects and lighting effects);

***References & Imported Packages:***

* ***Turrets:***
* <https://assetstore.unity.com/packages/3d/props/exterior/tower-defence-cannon-74837>
* <https://assetstore.unity.com/packages/3d/environments/fantasy/canon-tower-50215>
* <https://assetstore.unity.com/packages/3d/environments/fantasy/battle-cannon-70589>
* ***Enemies:***
* <https://assetstore.unity.com/packages/3d/characters/creatures/rpg-monster-duo-pbr-polyart-157762>
* <https://assetstore.unity.com/packages/3d/characters/stone-monster-101433>
* ***Environment***:
* <https://assetstore.unity.com/packages/3d/props/exterior/rock-package-118182>
* <https://assetstore.unity.com/packages/3d/environments/landscapes/autumn-mountain-52251>
* <https://assetstore.unity.com/packages/3d/vegetation/trees/realistic-tree-9-rainbow-tree-54622>
* <https://assetstore.unity.com/packages/3d/environments/house-pack-35346>
* Miscellaneous:
* <https://forum.unity.com/>
* <https://www.youtube.com/>