



GAME DESIGN DOCUMENT

LAMA | ONLINE GAME DESIGN 2018 - 2019



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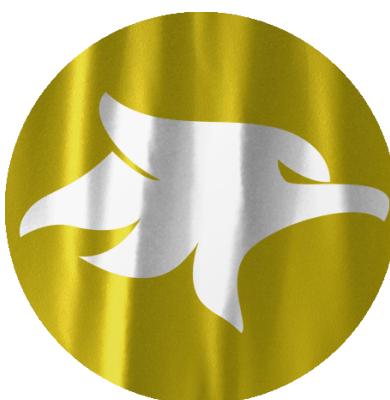
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1 Changelog

User	Date	Description
De Cosmo, Carrarini, Cerrato	22/03/2019	Game Concept
Maione	01/04/2019	Added section Legal analysis
Maione	03/04/2019	Added section Media list
Carrarini	05/04/2019	Added section Gameplay
Maione	06/04/2019	Added section Characters design
De Cosmo	07/04/2019	Added sections: - Vision Statement - Game World
Carrarini	08/04/2019	Updated section Gameplay
Cerrato	09/04/2019	Added sections: - Audience - Platform - Marketing
Maione	09/04/2019	Updated section Characters design
Cerrato	14/04/2019	Added section Interfaces
De Cosmo	06/05/2019	Added section Gameplay special cases Updated sections: - Target audience - Top performers - Feature comparison
Carrarini, Maione, De Cosmo, Cerrato	10/05/2019	Added sections: - Level design - Story
De Cosmo	13/05/2019	Updated sections: - Reason vs Instinct - Gameplay description
Maione	18/05/2019	Added images (screenshots and renderings)
De Cosmo, Maione	03/06/2019	Updated section Feature comparison Added section Size comparison
Maione	04/06/2019	Added section Media
De Cosmo	05/06/2019	Updated section Vision statement

De Cosmo	06/06/2019	<p>Added sections:</p> <ul style="list-style-type: none"> - Player-base estimation - Business model <p>Updated sections:</p> <ul style="list-style-type: none"> - Legal analysis - Audience, Platform and marketing
Carrarini	07/06/2019	<p>Updated section Gameplay:</p> <ul style="list-style-type: none"> - Reason vs Instinct - Traps - Mobs - Matchmaking
Maione	08/06/2019	Added section Level design
Carrarini, Cerrato	08/06/2019	<p>Updated section Gameplay:</p> <ul style="list-style-type: none"> - Audience Hype - Interfaces: <ul style="list-style-type: none"> - Flowcharts - Wireframes
Carrarini, Maione, Cerrato	09/06/2019	<p>Updated section Media:</p> <ul style="list-style-type: none"> - Music - Sounds - Media list
Cerrato, Carrarini, Maione, De Cosmo	10/06/2019	<p>Added reference images</p> <p>Updated section Story:</p> <ul style="list-style-type: none"> - Storyboard

2 Vision Statement

Hypogeaum is a **shooting** and **racing game**, where **four teams of two players** face each other in an **enormous arena** (called, in fact, Hypogeaum), trying to **defeat** their **enemies** and be the **last standing**. Each team belongs to **one of the four existing factions** and is **composed of two players** from the **same species**, that represent the **champions**. The battles are fought on **cars**, with one player as **driver** and one as **shooter**, each of them **equipped with a faction-specific weapon**.

The teams, in addition to the other players, have to pay attention to the **surrounding environment**: different **traps** and **NPCs** could **interfere** with the battle and **increase the difficulty** of the match. However, the heroes are **not alone**: each team has its **supporters in the audience** and, through **thrilling actions**, can increase their **excitement** up to push them to help their favourites with useful **power-ups**.

In order to be the **last species** in the arena, the **cooperation** between the team members **is essential**: when the battle begins, they are alone against the opponents and can **rely only on each other** and on their **nature**. Will their **instinct** prevail? Or will the **reason** command their actions? Only the most **brave** and **sly** players can lead their species to the **victory** and become the **champions**, gaining the **supremacy** on the others.

Players' statistics and **battles' results** are tracked through a **seasonal leaderboard**, in order to establish which **species** is the **best** and which **heroes** are the **bravest**.

2.1 Game genre

Depending on the player's choice, Hypogeaum can be played either as a **driving game** or as a **third person shooter**.

2.2 Look and feel

The game has a **cartoonish graphics** and represents a **futuristic world** where the animals take the control of **human technologies** and start a **war** to gain the **supremacy**. The main characters are **evolved humanoid animals** belonging to four species, **Eagles, Lions, Rhinos and Sharks**, that are able to **drive cars** and **shoot**, facing each other in arena, called Hypogeaum.

2.3 Game logline

Choose your **species** and face your **opponents**: are you **brave** and **skilled** enough to gain the **supremacy**? Jump on your car and show everyone what **you** are capable of!

2.4 Gameplay Synopsis

The players **choose one** of the four existing **animal species** (that can be their **favorite** one, the one that **embodies their ideals, way of thinking, etc.**) and try to become the **hero** of the faction, battle after battle, and obtain **special in-game rewards**.

The matches are set in an arena (with a 270 meters diameter and more than 250 meters height), where **four teams of two players** face each other, trying to **defeat** their opponents and become the **last team standing**.

Each team represents an **animal species** and is made up of **two players**, both **on the same car** but with different **roles** and **tasks**:

- The **driver**:
 - **drives the car**, being aware of the environment (**obstacles, enemies and traps** in the arena);
 - **avoids** the enemy teams' **shots** and tries to **put** his **teammate** in the best possible conditions to fire;
 - **activates his ultimate ability**, that depends on the chosen species;
 - **uses the ramps and performs tricks** to **increase** the **audience's hype** for the match.
- The **shooter**:

- **shoots** the enemies with his **specie-specific weapon**;
- **increases** the **audience's hype** when **damaging** other players;
- **activates** his **ultimate ability**, that depends on the chosen species;
- **shoots** to the **traps** to activate their effects, trying to damage the enemies.
- **Both:**
 - try to **collect** the **power-ups** dropped by the audience (driving toward or shooting to them) and **use** them;
 - **decide** if collect the **instinct coin** or the **reason coin** that will **start a challenge** whose **reward** will affect the **team statistics** for the whole match;
 - **face** the **NPCs**, trying to **destroy** them shooting or running over, depending on their characteristics.

When the battle begins, each team car spawns in a **different area** of the arena. Since the **characters are evolving**, they have to **face an inner conflict between their instinct and their reason**. In fact, from the very beginning the team has to **take a decision**: **boost** the **instinctive abilities** or the **reasoning ones**? Maybe **none** of them. The choice depends on the faction's **statistics** and on which **playstyle** players decided to adopt. The decision of the **strategy** to follow for the match has an important role since the first phases and can lead to different outcomes! To worsen the situation, during the match, several elements can make the **environment hostile**, from **traps** to **NPCs** and **random events** that sometimes may occur, but the **audience** can **help** the teams: thanks to **thrilling actions**, the **supporters' hype** can **increase**, up to the point that someone on the bleachers will give a **power-up** to the heroes of his species.

For the players, the **cooperation** between the **driver** and the **shooter** becomes a fundamental element: the **only way to survive** in the arena and to reach the objective is **helping each other, joining the forces** against the enemies and the environment.

At the **end of the match**, the game assigns a **score** to **each team member**, depending on the battle's result. This is then **added** to their **personal score** in their **species leaderboard** and to the **overall leaderboard** of the factions.

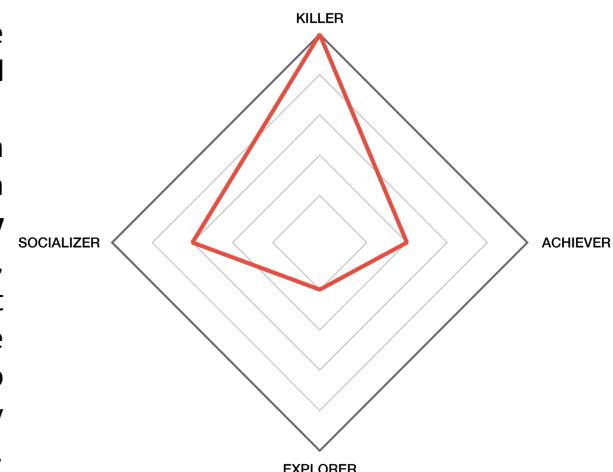
At the **end of each season**, the **best species** is decreed, and the **bravest players** are selected among its members. These will receive **special in-game rewards** to celebrate their achievements and abilities: they distinguished from all the others for their **skills** and **courage** and are the **heroes** of the winning species.

3 Audience, Platform and Marketing

3.1 Target Audience

The game is designed primarily for **killer gamers**, that are players who enjoy **competition**, want to **demonstrate** their **skill** and **mastery** on the game and **love to win**.

For these reasons, with Hypogea we are developing a **stimulating competition** on many aspects, not just limited to a single game. Most of the **mechanics** described in the **gameplay** section (**audience participation**, **specie rankings**, **objectives**, **bosses**, etc.) are designed to provide the players **sub-goals** that can give them a sense of **accomplishment** when achieved. We define as a secondary gamer kind the **socializers**. Due to Hypogea's **co-op nature**, this type of players can enjoy **playing with friends** or **finding new ones** through **matchmaking**.



According to our estimation, our game should match the players types as follows:

- **Killer - 100%:** The whole game is designed around the concept of “**domination**”, from the lore to the gameplay. The battles are set in an **arena** in order to provide the player the feeling of being at **audience's centre of attention**. In this way, they are **motivated** to fight, trying to **survive** and to **show to be the best**, as **ancient gladiators** did in the past. Due to the **co-op nature** and **complexity** of the possible **in-game events**, we foresee Hypogaeum as an “**easy to access - hard to master**” game, where the **most skilled** players will **prevail** on the others.
- **Achiever - 40%:** The game is **not** designed around **collectibles** or **similar** features, but we imagine the **species ranking** as an **appealing factor** for this kind of player.
- **Explorer - 20%:** Since the **only environment** developed is the **arena** and there is **not** an **external world**, there is **no** real possibility to **explore**. Even though the setting is pretty big and moving around can make the difference during the battles, we do **not** consider this as a feature that can **satisfy** the **explorers**.
- **Socializer - 75%:** The game **cannot** be played in **single-player** mode. The **matchmaking** is in charge of **setting up** the **teams**, if these have not **already** been **assembled**. This implies that each player **needs** a **partner** to **join** the game. Moreover, the **species** are basically **macro-guilds** and can promote **social aggregation** and **socialization**. These features make the game interesting also for **socializers**.

3.1.1 Age and distribution

According to our estimation, we expect a **target audience younger** than the average, but that still covers the main **demographic classifications**.

Analyzing data from different sources, we foresee the following **distribution**:

Age	10-14	15-19	20-23	24-27	28-30	30+
Distribution	19%	31%	26%	14%	7%	3%

By this, we can esteem an **average age of 18 years** for our players.

Despite usually shooting and racing games **audience** is **mainly** made up of **males**, we foresee that Hypogaeum can be **appealing also for females**, since it is **non violent** and has a **cartoonish graphics style**.

Fortnite based part of its success on this factor, resulting **attractive** for **girls** and **kids** thanks to its **comics style** and the **funny gags**. The **percentage** of Fortnite's male and female players in 2018 was of **72-28** (based on data provided by [Statista](#)). Even though this represents an **exceptional case** and must be taken with caution, it can be a **good case study**.

Considering what we have said up to now and that the **classical** players **male-female distribution** in **racing** and **shooting** games is approximately **93-7** (according to [QuanticFoundry](#)), we esteem having a **partition** around **80-20** in Hypogaeum.

3.1.2 Geographical distribution

For what concerns the **geographical distribution**, there is **no reason** to think that we will encounter issues in particular areas or countries.

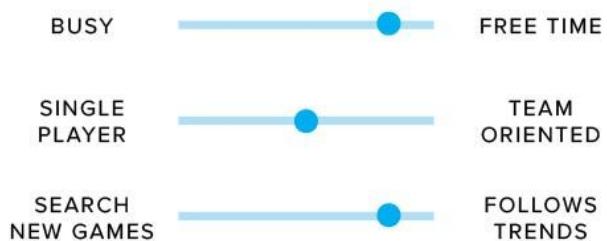
The only **problem** we can foresee is related to **religious motivations** about the **sacrality** of certain **type of animals** in some **cultures**, but up to now we have **no evidence** to face impediments connected to the chosen species for the game. For more information about **animal worship** see [Wikipedia](#).

3.1.3 Personas

THE COMPETITIVE KID



"Let's smash these noobs bro, they don't stand a single chance against us!"



SIMONE

15 YEARS OLD
MILAN, ITALY

Is quite expert in gaming

Owes many different consoles

Plays with his two brothers

Spends around 15 hours a week

playing on different platforms

Can spend some money in games

ABOUT

Simone is a kid who attends the second year of high school; he is a mid-core gamer, who follows some gaming channels on Youtube and some streamers on Twitch. He has two younger brothers who also play games with him, and they usually play with their friends the games that become the trend of the moment.

MOTIVATIONS

- He wants to imitate his favourite streamer, who tried the game and is very good at it.
- He is very competitive and wants a game in which he can constantly show his skills, with low luck involved.

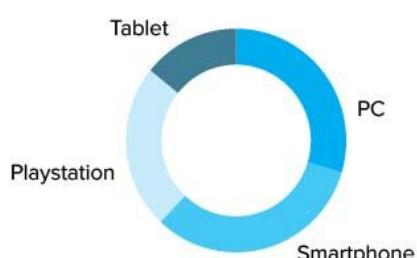
CHALLENGES

Achieve tangible results in the game before his friends and brothers.

NEEDS

A game which is simple to approach but hard to master.

DEVICES USED



CHANNELS USED

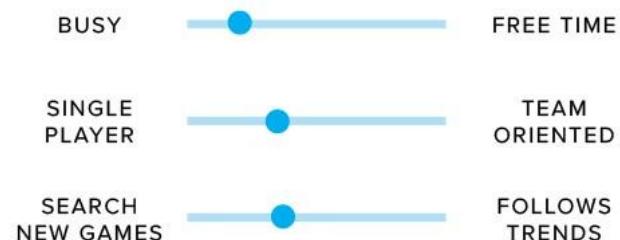


The competitive kid.

THE NERDY STUDENT



"Let's have some fun, I want to kick some asses before going to bed"



SOPHIE

23 YEARS OLD
LONDON, ENGLAND

Has played many games as a teen

Owes only a computer

Enjoys playing with her boyfriend

Spends 8 hours a week playing

Wants exciting experience in short time, usually at night

ABOUT

Sophie is a girl who attends her fourth year in university. She has always enjoyed video games and have many friends who play with her. Her boyfriend is also a gamer and sometimes they find new games to play together. She would like to play more but the university commitments don't allow her to.

MOTIVATIONS

- Try a new game that was suggested in her favourite review site
- She wants a game that she can play with a partner
- Discuss of the game with friends to improve and tell about fun games

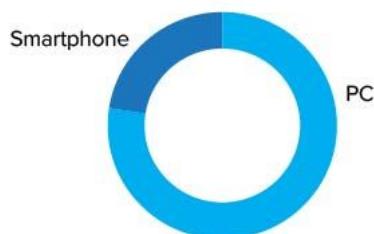
CHALLENGES

Find her favourite class and master it soon, to win more games

NEEDS

A game with short but exciting matches that she can play at night

DEVICES USED



CHANNELS USED



The nerdy student.

3.2 Platforms

Hypogem is developed to be played by Microsoft Windows, MacOS and Linux users through the **Steam** client, so it is designed as a **PC video game**.

The first reason of this choice is connected with the **game mechanics**: the nature of input devices such as **mouse** and **keyboard** allows the users to have greater **accuracy** on the **characters movements** while playing the game, therefore granting **better performances** and **game experiences**.

Since the game is designed for **middlecore gamers** and not for hardcore ones, this platform is particularly suitable to expand to a **wider player-base in short time**. If the game turns out to be **successful**, we could consider a possible release of Hypogem also on **consoles** like **PlayStation, Xbox** and **Nintendo Switch**.

We **excluded** the release on **mobile gaming platforms** due to a **weaker Internet connection, more difficult control management** on touch screens and the **average duration of the game** (around 10 minutes), that is too much for these devices. All these factors are **critical points** and will make the **experience less enjoyable** and **entertaining**.

3.3 Minimum system requirements

To **avoid reducing** our **market share**, we designed the game such that it has **minimum system requirements** in order to make it playable on almost any computer. These requirements are:

Processor	Dual-core @ 2.4 GHz
Memory	2 GB RAM
Graphics	ATI Radeon HD 4850 or NVIDIA GTX 260
Storage	150 MB available space
Sound Card	DirectX-compatible sound card
Connection	Broadband Internet connection
Network	ADSL 10 Mbps
Input Devices	Mouse and keyboard are required

3.4 Recommended system requirements

However, we **recommend** the following **system requirements** in order to have an improved game experience:

Processor	Quad-core @ 2.5+ GHz
Memory	4 GB RAM
Graphics	ATI Radeon HD 7950 or NVIDIA GTX 660
Storage	150 MB available space
Sound Card	DirectX-compatible sound card
Connection	Broadband Internet connection
Network	ADSL 20 Mbps

Input Devices

Mouse and keyboard are required

3.5 Top performers

We performed an **analysis** of our game's **major competitors** in order to evaluate their **main features, selling points** and **statistics**, such as the number of players or their market share.

3.5.1 Crossout (2017)

Crossout is a **post-apocalyptic MMO-action game** for **PC** and **consoles** developed by Targem Games and is published by Gaijin Entertainment.

The game allows players to **construct** their own post-apocalyptic **vehicles** to be used in **PvP** engagements with real players and **PvE** missions involving **AI-participants**.

The battles are in **real-time** and involve **two teams** of **players** and **AI agents**. To win, a team must **eliminate** the **enemy team, capture base** or perform **other tasks** depending on the game mode.

This game also provides a system of **7 factions**, each with its own gameplay features and story.



3.5.2 H1Z1'S Autoroyale (2018)

Autoroyale is an **expansion** of the famous battle royale **H1Z1**, developed by Daybreak Game Company.

The gameplay follows the same **logic** of **other battle royales**, but the players can only **move** and **shoot** through their cars.

When the game starts, the players are inside a **box** placed in an area of the map. When this box opens, players are free to **move** and can try to **get a vehicle**. Each car is controlled by a **team** made of **four players**, **one driver** and **three shooters**. It is possible to **drive over power-ups**, **activate** them and **shooting** to some **special boxes**, acquiring **new weapons** and **equipment**. The players are forced to **get closer** since they have to stay **inside** a circle that becomes **smaller** time after time, otherwise they **get damaged up to die**. The **last team standing** is the **winner** of the match.



3.5.3 Borderlands 2 (2012)

Borderlands 2 is an **action role-playing first-person shooter** game developed by Gearbox Software and published by 2K Games. The gameplay is based on the achievement of **several missions** and the **collection of randomly generated loot**, such as **weapons, shields, skins, and other items**, with various **rarities, statistics, and elemental effects**. **Four playable character classes** are available in the base game, each with its own **unique abilities and skill trees**.

Borderlands 2 was one of the **best-selling games** of 2012, and has become the best-selling game in 2K Games history, with 8.5 million copies sold in February 2014.

We consider Borderlands as a competitor, due to its later added **cooperative mode**, where players can **drive vehicles** and **shoot**, even if it is not based on matches and is an **open world**.



3.5.4 Rocket League (2015)

Rocket League is a **vehicular soccer** video game developed and published by Psyonix. The game is based on controlling a **rocket-powered car** and use it to **hit a ball** towards the other team's **goal area** to score, resembling a **soccer game**.

Players' cars have the ability to **jump** to **hit** the ball while in **mid-air**. The players can also pick up a **speed boost** by passing over **marked spaces** on the field, enabling them to **quickly cross the field**, use the **added momentum** to hit the ball, or run into another player's car to **destroy** it. Matches can be played from between **one-on-one up to four-on-four** players, as well as **casual** and **ranked**.

Rocket league is a **competitor** due to the **elements** it has **in common** with our game: it is played in an **arena** with cars, requires **good coordination** in **driving** and **among the team members** and periodically provides **in-match power-ups**.



3.5.6 Fortnite (2017)

Fortnite is an **online video game** developed by Epic Games. The game has **three distinct game modes** that shares the **same general gameplay** and **game engine**.

Fortnite Save the World is a **cooperative shooter-survival** game for **up to four players** that have to **fight zombie-like creatures**, while **defending objects** through the **fortifications** they can build.

Fortnite Battle Royale is a **free-to-play player-vs-player battle royale** where **up to 100 players** **fight** until one of them is the **last one standing**. Weaponless players airdrop from a **Battle Bus** that crosses the map and, when land, they try to **survive** and **kill other players**, while the **map shrinks** down, time after time.

In **Fortnite Creative**, that is a **sandbox game mode**, the players are free to **create** their own **worlds**, **battle arenas**, **race courses**, **challenges** and so on. In the **first two modes**, players use a **pickaxe** to knock down existing structures on the map and **collect** basic **resources** that they use **to build fortifications** such as walls, floors or stairs, that can also be edited adding doors or windows, etc. Depending on the material used, these items can have **different durability properties** that can change if they are updated with stronger variants using more materials.

Fortnite Battle Royale is a resounding success, involving more than **125 million player** in less than a year and earning **hundreds of millions of dollars per month**, up to become a cultural phenomenon. The monetization is done through **V-Bucks**, that are the in-game currency buyable with real-world funds or earnable completing missions or achievements, used to buy pinatas containing random items.

We consider Fortnite as a competitor since recently Epic Games started a **timed event** (in April) called **Air Royale** during which **teams** of players face each other to gain **exclusive rewards**. One member of the team plays as **plane pilot** so **drives** the aircraft and uses the **on-board weapons**, whereas the other is the **passenger** and uses his **personal weapons** to hit the enemies.



3.6 Feature comparison

	Crossout	H1Z1 Autoroyale	Borderlands 2	Rocket league	Fortnite	Hypogeum
Co-Op (on same vehicle)	No	Yes	Yes	No	Yes (limited to an event)	Yes
Real time coordination	No	No	Yes	No	Yes (limited to an event)	Yes
Arena	No	No	No	Yes	No	Yes
Different classes	Yes	No	No	No	Yes	Yes
Instinct vs Reason (affects statistics)	No	No	No	No	No	Yes
In-match objectives	No	Yes	No	No	No (they are in-game or connected to events)	Yes
Neutral enemies	No	No	Yes	No	No	Yes

Factions	Yes	No	No	No	No	Yes
Audience hype	No	No	No	No	No	Yes
Off-match car customization	Yes	No	No	Yes	No	No
More game modes	Last-standing	Last-standing	PvE	Scoring goals	Last-standing , Sandbox, Cooperative Survival Shooter	Last-standing
Graphic style	War	Post apocalyptic	Semi realistic 2.5D	Cartoonish	Cartoonish	Cartoonish
Platforms	PC, Xbox, PS4	PC, PS4	PS3, Xbox, PC, macOS, Linux, PS Vita, PS4	PS4, Nintendo Switch, Xbox, PC, macOS, Linux	PC, PS4, Nintendo Switch, Xbox One, macOS, iOS, Android	PC

As can be seen, there are **several features** that differentiate our game from the competitors.

The first one is a game core mechanic: the **cooperative mode**. Hypogeaum relies on **players' collaboration** more than other games do: the **whole match**, the **actions performed** and their **results** are strictly depending on the **team's synergy**.

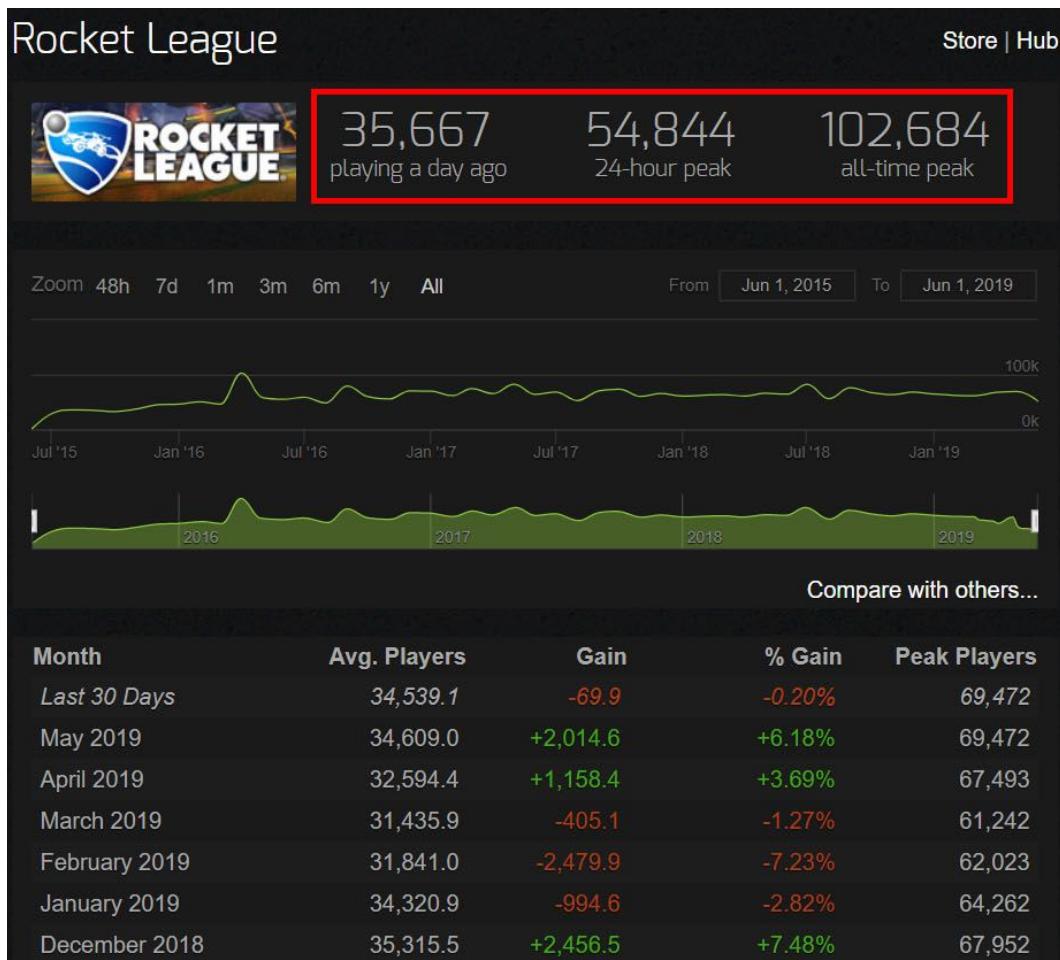
A **fundamental characteristic** of the game is the **inner conflict** of the characters between their **instinct** and their **reason**. This duality gives birth to the possibility of favouring **one side** of the spectre **or another**, through the **team choices** reflected in specific **in-game objectives**. If players so desire, they can **incline** their **behaviour** towards a more **aggressive**, a more **strategic** or a **neutral** playstyle. [5.2.3 Reason vs Instinct](#) better describes this feature.

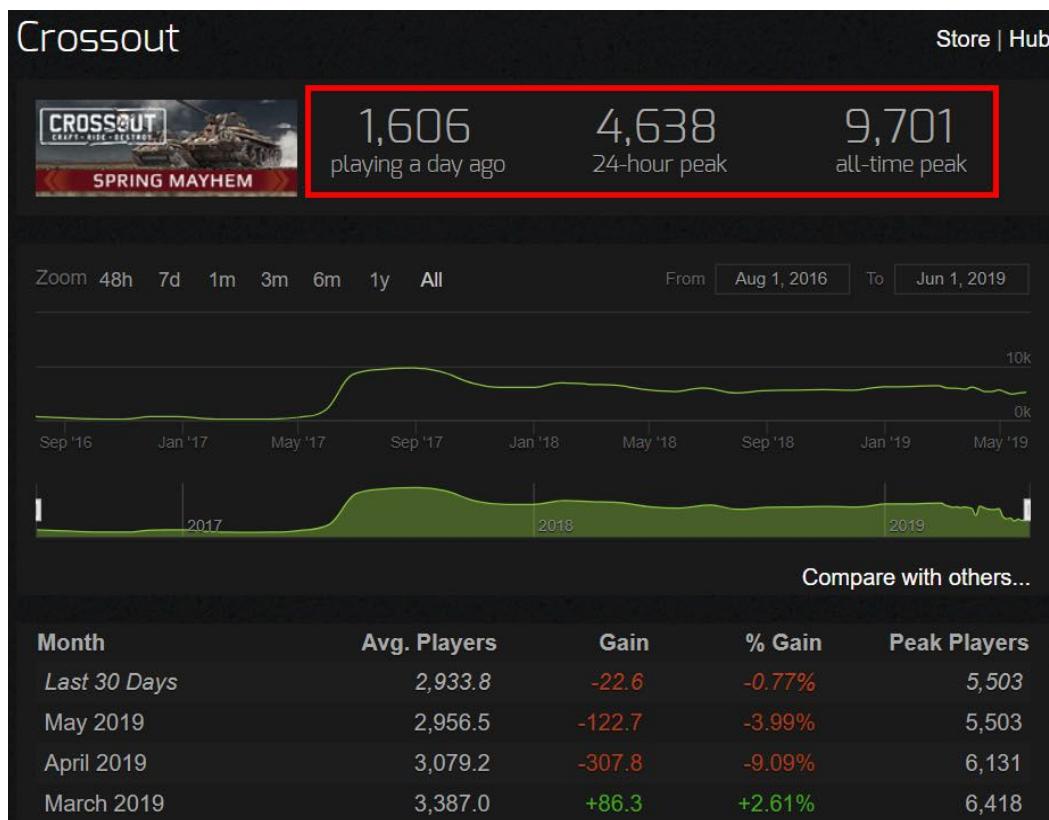
Differently from our competitors, we **emphasize** a lot the **species factions system**, up to the point that it **characterizes** some of the **game mechanics**. See [6 Game Characters](#) for more detailed information.

Another important feature is the **audience hype mechanic**, that does not exist in none of the analyzed competitors. Performing **stylish actions**, teams can increase the audience hype and, once it reaches the apex, get **special power-ups**. For more information, see [5.2.6 Audience Hype](#).

3.7 Player-base estimation

Analyzing the **data** provided by **SteamChart** about **3** of our **available on Steam main competitors** (Rocket League, Borderlands 2 and Crossout), it has been possible to make some **estimations** about our **player-base dimensions**. It is clear that it is **not possible** to have the same number of players of **Rocket League**, since it is one of the **most successful** games in the recent years, or of **Borderlands 2**, another pretty **popular game**, but we expect to have **at least the same** number of users of the competitor with the **lower player-base dimension**, Crossout. Starting from these data, we foresee to have on **average 130,000 players per month**, that means around **4,000 players per day on average**.





3.8 Business model

We decided for a **freemium business model**: the game will be released as a **free-to-play** game on **Steam** and will have an **in-game store** where users can **purchase season passes** and **customize** their characters with **new skins, weapons and cars**, through a **microtransactions system**.

In the **free-to-play model**, the most important factors are the number of players **continuously engaged** and how many **spending opportunities** the game offers. We chose this business model because it has two strong advantages:

- **more people** will try the game since it is **free**;
- **revenues** will likely be **more** than a traditional game, since **different players** can spend **different amounts of money**, depending on their **engagement** and **preferences**.

According to several researches (see [VentureBeat](#) and [Vox](#) for more details), the **majority** of players plays **for free** and **few pay** money, so a very tiny **minority**, called **whales**, **pays the majority of the income**. It has been esteemed that **up to 50%** of revenue comes from **0.15%** of the players, called **white whales**.

Hypogeaum is designed with **season-based mechanics**, so all the game events are **time-constrained** to specific periods, such as the corresponding **rewards**. We will also release **four major updates** to improve players' **game experience** and **involvement**. These will **add** more **in-game elements**, **new features** and **personalization items**. In this way, we can **keep** our players' **interest** in the game, **reducing** the **abandonment rate**, and **lure** newer ones.

4 Legal Analysis

The **Hypogeaum name is free from copyright**.

The prototype is implemented in Unity, with the Personal Edition license.

Most of the **resources and assets** used in the **game prototype** are available with a **free license**, whereas some assets might be **purchased** from the **Unity Asset Store**.

All the **digital contents** included in the **final game** will be **designed** and **created** by the **development team**, in **collaboration** with **graphic and music artists**.

External services will be purchased from **third party companies**.

PEGI 7: no bad language, violence in a not realistic context, online gameplay.

5 Gameplay

5.1 Overview

You can choose between 4 factions: Lions, Sharks, Eagles and Rhinos.

There are 2 roles: driver and shooter, both collaborate to win the battle race and gain points for their faction.

Your objective is to defeat the enemy teams by destroying their cars.

In the arena there are also mobs, traps, jumps, audience... try to avoid dangers kill enemies and win for the glory of your species!

5.2 Gameplay description

After the matchmaking ended (when the 4 teams have been formed, [5.4.3 Matchmaking](#)) the game starts with the teams' cars in different spawn points of the arena, then the driver is free to move everywhere in the whole map, doing jumps, collecting power-ups, trying to have collisions with other teams, collecting Rational or Instinct coin or running over the AI mobs.

Obviously, your driving ability is key to avoid the dangers of the arena ([5.2.4 Traps](#)) and to let your shooter try to hit the enemy teams to knock them out of the game.

The shooter instead must use his weapon to hit both AI mobs and enemy teams, his aim skill is fundamental to eliminate the opponents and lead his team to victory.

Jumps will determine the audience entertainment that will lead to power-ups thrown to their faction's champions inside the arena.

Different factions have different car stats and a different class special ability, discussed in the [5.2.2.1 Stats](#), that will charge up during the game along with time and kills, either of mobs or players.

Every team at the beginning of the match can see two different coins: one for his Rational side and the other for his Instinctive side. Picking up one (driver) or shooting it (shooter) will make the other disappear, forcing you to make a choice between your human side or your beast one.

Once you have collected one, you will have to complete a task to get a boost to the respective stats of the side you have chosen, a detailed description will be presented in chapter [5.2.3 Reason vs Instinct](#).

Bumping with your car into a mob will damage it, while bumping into an enemy car will damage both cars differently, basing on their resistance stat. Bumping into walls will not damage your car.

The game **lasts 15 minutes** and **ends** when only **one team remains**. What happens if there are still 2 or more teams alive is discussed in chapter [5.2.1.1 Tie when time is up](#).

Other problems that may occur are when the minimum number of players is not reached or if one or more players lose the connection. These cases are described respectively in chapter [5.2.1.2 Not enough players](#) and [5.2.1.3 Connection lost](#).

In the arena there will be traps the driver should avoid or the shooter can activate from distance, discussed in chapter [5.2.4 Traps](#).

Along with traps, the arena will be populated with mobs of different types and dimensions, a full list will be presented in chapter [5.2.5 Mobs](#).

The audience will have a part in the game, a full explanation of audience hype and power-ups will be presented in chapter [5.2.6 Audience Hype](#).

5.2.1 Gameplay special cases

In the gameplay there are 3 special cases that need to be explicitly discussed:

- tie when time is up;
- not enough players;
- connection lost.

5.2.1.1 Tie when time is up

After **15 minutes** the team with **more health** is declared to be the winner. If there is a tie, 2 minutes overtime start, during which the teams have to inflict to their opponent(s) the most possible damage. At the end of the extra time, the winning conditions are checked again: the remaining team or the one with more health wins, whereas if these conditions are not satisfied, the players drew and the match ends.

5.2.1.2 Not enough players

During the matchmaking may happen that the game does not find the minimum number of players required to start a match (8 players). In that case, after two minutes, the player can choose to join a smaller lobby of 4 or 6 other players (playing a match respectively with 2 or 3 teams, instead of 4).

5.2.1.3 Connection lost

The connection lost case is divided in two smaller cases, one for the player that loses the connection and the other for his teammate.

The player that has a connection lost can not rejoin the match. If it happens for the first time in the last two hours, the player is kicked out of the match without any penalty to his ELO, otherwise for each following connection lost, in addition to being kicked out, the player loses an incremental amount of ELO points starting from 30. In this way we aim to prevent unfair behaviours, such as rage quits, and collateral damage to the teammates that could get a disservice.

The teammate left alone can choose if he wants to play alone, controlling both the driver and the shooter for the rest of the match, or if he prefers to return home, without any score penalty.

5.2.2 Factions characteristics and abilities

Each faction has different value of statistics and different special abilities, one for attack and one for defense. They can be charged with time for the driver and with damage and kills, both of players and of mobs, for the shooter.

The stats are:

- Attack: it affects the amount of damage the shooter inflicts with his weapon;
- Resistance: it affects the amount of damage from collision you cause to others and that you get;
- Health: it is the health pool of the car, when it reaches 0 your team is eliminated;
- Speed: the maximum speed the car can reach;
- Agility: it affects the way curves are done and how fast the car can reach its max speed;
- Fire rate: it regulates how fast each faction weapon can fire (the fire rate value is hidden to the players).

5.2.2.1 Stats

Here's the full list of each faction its stats value:

Property	Lions	Sharks	Eagles	Rhinos
Health	1200	1000	800	1500
Attack	9	7	5	7
Fire rate	6	7	9	5
Resistance	6	7	5	9
Speed	6	7	9	5
Agility	7	6	9	4

5.2.2.2 Weapon and bullet types

	Lions	Sharks	Eagles	Rhinos
Bullet	Spear	Harpoon	Arrow	Cannon ball
Weapon	Spear gun	Harpoon cannon	Ballista	Cannon

5.2.2.3 Special abilities

In the following, we present the lists of the special abilities of each species:

Lions

Ability	Name	Player	Description
Attack	Grenade	Shooter	Throws a grenade causing 200 damage to players within 15 meters range
Defense	Roar	Driver	Makes all cars spin on their position, for 4 seconds, within a 20 meters range

Sharks

Ability	Name	Player	Description
Attack	Bite	Driver	Executes a straight dash and the car bites what's in front, causing double collision damage instantly and 10% of the damage dealt in 5 seconds
Defense	Shark skin	Shooter	For 20 seconds reduces all incoming projectiles damage by 50% and cancels all incoming collisions damage

Eagles

Ability	Name	Player	Description
Attack	Net	Shooter	Throws a net, blocking for 10 seconds all players hit
Defense	Tornado	Driver	Summons a small tornado around the car, deflecting all incoming projectiles for 20 seconds

Rhinos

Ability	Name	Player	Description
Attack	Charge	Driver	Charges furiously at double the speed and doubles caused collision damage
Defense	Shield	Shooter	Creates a shield around the car with a 200 points health pool and no time limit

5.2.3 Reason vs Instinct

The animals of the game world belongs to **evolving species** that, time after time, started to get humanoid appearance and behaviours. Since this evolutionary process has **not been completed** yet, sometimes one

between their **rational** and **instinctive** natures may **prevail** on the other and affect what they do and their way to act.

For these reasons, in Hypogeaum players have the chance to choose between their **rational** or **instinctive** side. At the beginning of each match the team can decide to collect an **Instinct** or a **Reason Coin** (or none of them) modifying the team statistics (or not) for the whole match.

The two coins have respectively **claws** and a **brain** drawn on them and can be collected by the team **driving over** or **shooting** at them. Once the team has decided which nature will be the prevailing one and has taken the corresponding coin, the game assigns an objective that needs to be achieved to apply the changes and modify the statistics. The objectives are divided into two groups, depending on which nature they affect:

- **Reason objectives:**
 - Don't get hit from enemies' projectiles for 1 minute;
 - Avoid 3 collisions;
 - Run over and kill 5 small robot spiders;
- **Instinct objectives:**
 - Kill 5 mobs with your weapon or your special ability(shooter);
 - Cause 200 damage in total to other players;
 - Detonate 3 mines by shooting them.

As it can be noticed, the **rational nature** is more related with **driving skills**, since this is an **ability** belonging exclusively to **humans**, and gives a **+2** to both **Speed** and **Agility** statistics, whereas the **instinctive nature** is more related with **shooting skills**, that represent the most **animalistic behaviour** and are **aimed at surviving**, and gives a **+2** to **Attack** and **Resistance**.

(Different tasks always give the same +2 bonuses to both the statistics, regardless of the actions the player needs to perform to achieve it).

5.2.4 Traps

To make teams' lives harder, many traps are spread throughout the whole arena.

They obviously need to avoid them, but in some cases, they can be activated at the right moment to damage the enemy teams.

Here's the list of all the traps present in the game:

- **Spin trap:** if a car ran over it, it causes the car to spin around for 4 seconds;
- **Mud:** a pool of mud in which the cars move 2 times slower;
- **Mine:** an explosive mine that detonates on touch, it can be activated remotely by a shooter to damage opponents' cars. Respawns after 30 seconds and deals 100 damage;
- **Geyser:** it lifts the car for 10 seconds, causing 5 damage per second and exposing it to other teams' projectiles;
- **Meteorite rain:** After 5 and 10 minutes, a meteoritic rain will fall in the arena, trying to hit teams' cars and causing 300 damage to them.

in particular there will be **4 Spin Trap**, **4 pool of Mud**, **4 Mines** and **2 Geysers**.

The Geysers are the only ones that will be always in the same position in every match, unlike the other 3 that will spawn randomly at the beginning of the match.

5.2.5 Mobs

To make the environment more dynamic mobs will be spawned during the entire match.

They are of 3 types and dimensions, and they have different purposes:

- **Spider robots:** organized in group of **4**, they can't hurt the team's cars and can be killed easily simply running over them;
- **Tank robot:** it guides the group, it doesn't hurt the players, but can't be killed by simply running over it: a collision with it will let the players' car bounce. It can be killed by the shooter, using his weapon or

special ability, or by the driver, if his faction has an attack special ability (Sharks and Rhinos). When a car kills the last small robot spider of its group, the leader will follow the car until it gets destroyed or its enemy is not defeated, trying to have collisions with it and obstructing the team game;

- **Goliath:** spawns at the center of the map at mid match, targeting the players who enters its range (30 meters) of attacks. A special medal will be given to the players of the team that succeed to kill it and a scoreboard of the players with more medals will be online, granting, at the end of the season, an in-game reward to the first positions.

Every 3 minutes the game will check if there are at least **3 groups** of Spider robots, including the Tank Robot, if this condition isn't matched it will spawn, the exact amount of groups to match it.

The spawn points are 3 and equally distributed in the border of the arena.

5.2.6 Audience Hype

Another important mechanic is the management of the Audience.

Audience in the arena is composed by all the 4 factions' supporters (people on the stands of the arena) and they will react to their champions doing acrobatic jumps on ramps. Ramps are of 2 types:

- Single: you can execute the jump in only one direction;
- Double: the jump can be executed in both directions, paying attention not going short and falling in the trap between and with the possibility of an aerial collision with other teams' cars.

Each faction has its own hype bar and it can be raised only by the team of the same faction, the amount of bar progression depends on 4 factors:

- The max height reached in the jump (rounded);
- The flight time (rounded);
- Hits on target while on air (30 points for every shot landed);
- How the car lands on the ground (20 points if the car lands with all 4 wheels).

In the last 2 minutes of the match the progression is doubled.

When the bar is completely full it will automatically reset to 0 and the audience will throw a power-up in the arena, activated on passage or shoot only by the team of the same faction.

Here's the list of the power-ups:

- Immunity to traps for 30 seconds;
- Invisibility, edges can be seen, for 30 seconds;
- Medi Kit: restore 20% of lost health, health cannot go over 100%;
- Bonus charge to both driver and shooter special abilities of 20% of the bar.

Supporters on the stands are not NPCs and aren't related to this game mechanic.

5.3 Controls

5.3.1 Driver mode

KEYS	ACTION
W	Go ahead
S	Go back
A	Go left
D	Go right
M	Brake
K	Handbrake
L	Use special ability

5.3.2 Shooter mode

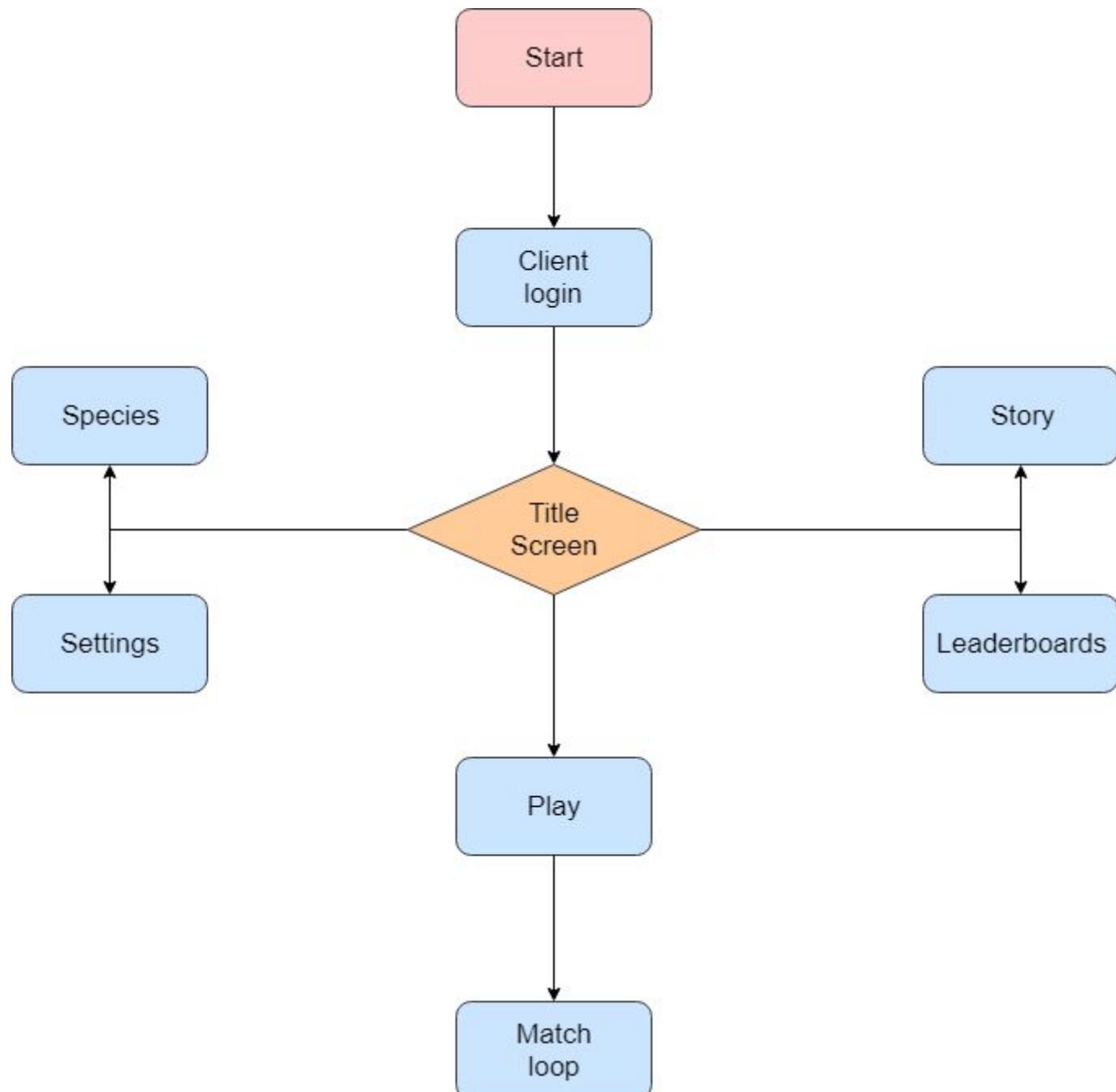
KEYS	ACTION
Mouse L	Fire
Mouse R	Activate special ability
Mouse	Camera movement

5.4 Interfaces

5.4.1 Scenes

The first flowchart shows the client functions that the player can use.

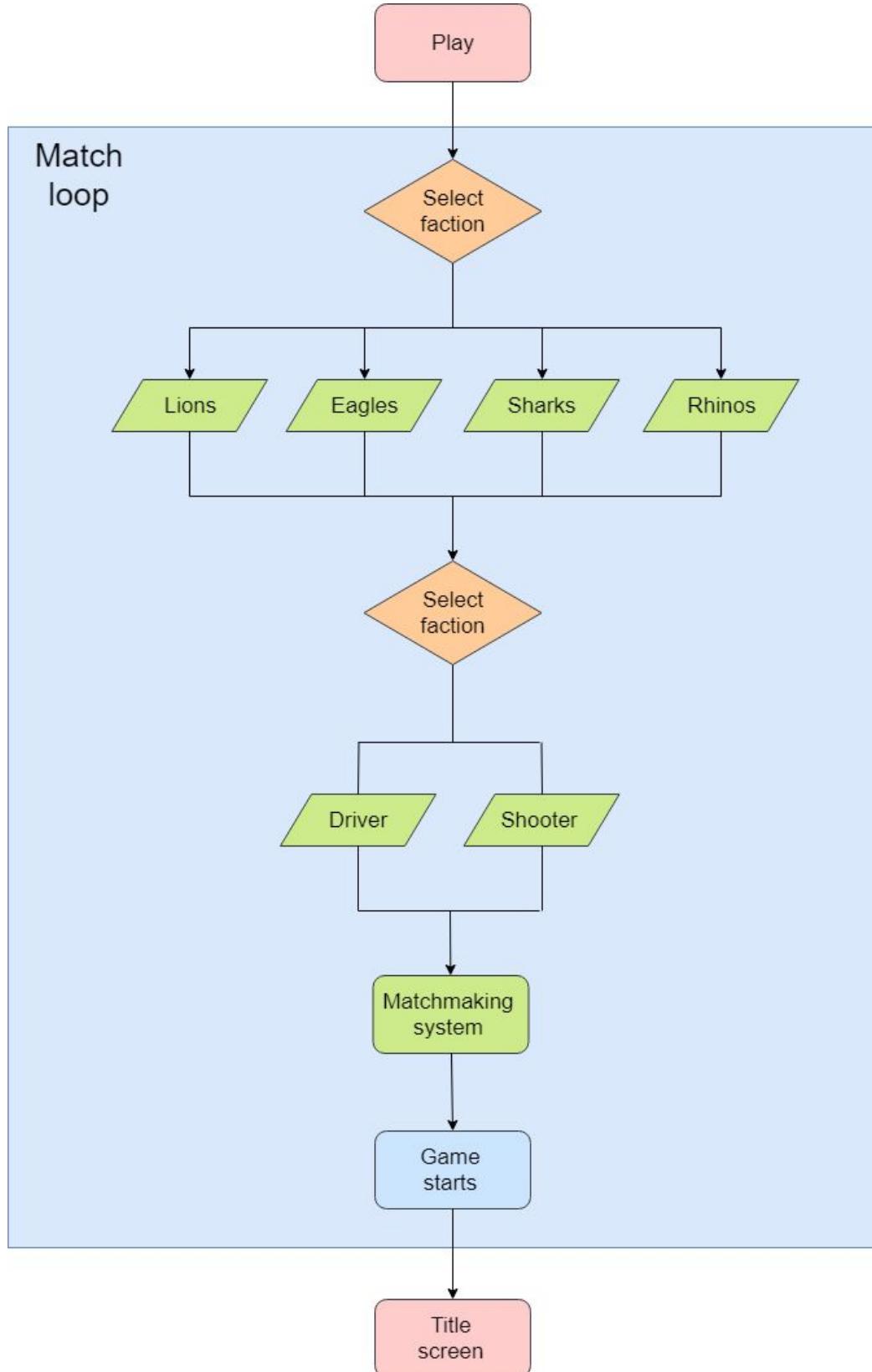
Details on the **Title screen** are in section [5.4.2 Title screen](#).



Game scenes sequence.

5.4.1.1 Match loop

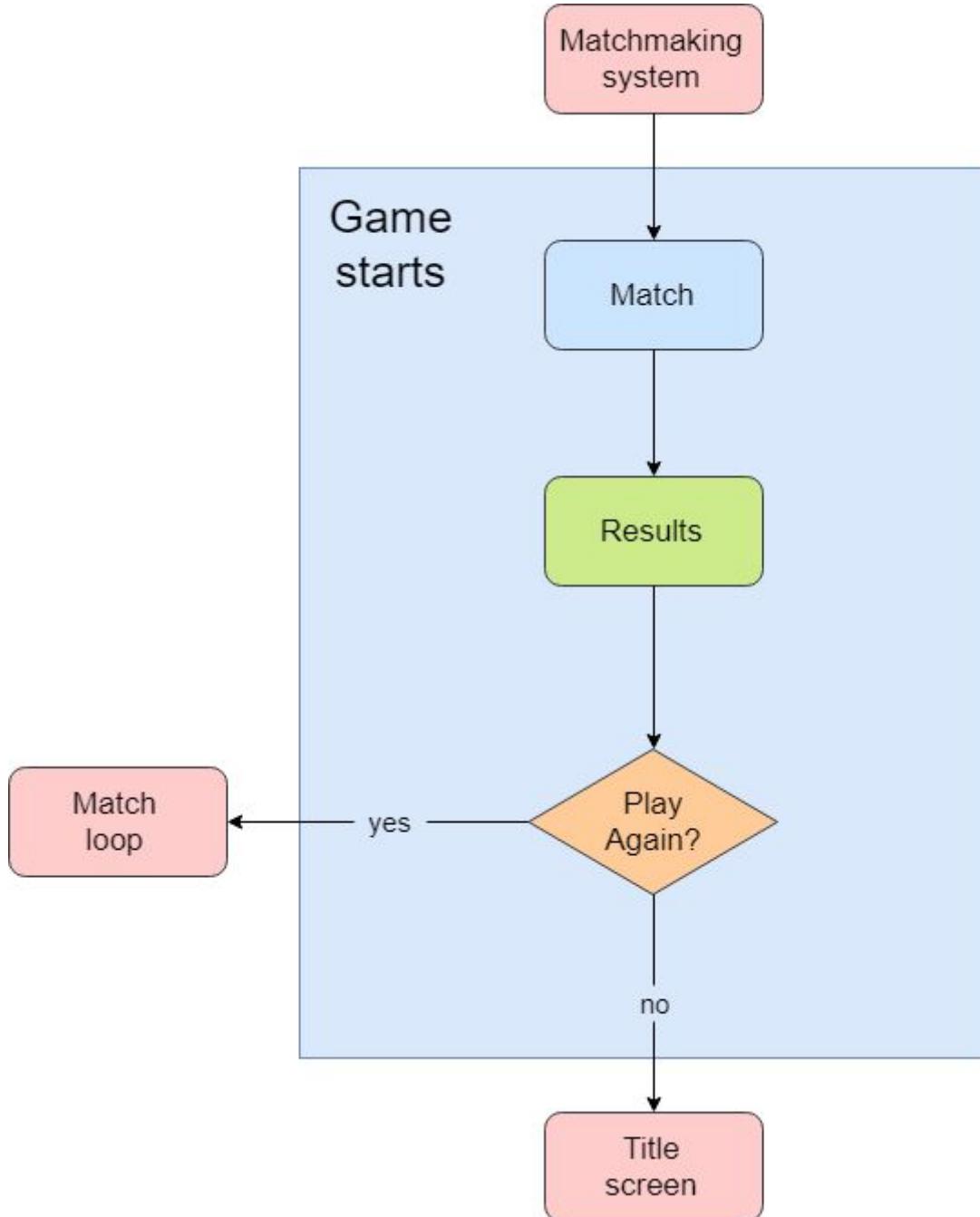
If the player chooses **Play** he goes in the character selection scene in which he can choose between the 4 species and the 2 roles. After that the matchmaking starts and when there are enough players the match begins.



Match loop detail.

5.4.1.2 Game starts

Once the matchmaking has ended the players fight each other in the arena, and when the game ends they can see their statistics and their new ELO ranking updated after the result they achieved in the game. Then they can choose to play again, which will bring them again to the **Character selection** scene otherwise they are taken back to the **Title screen**.



Game starts detail.

5.4.2 Title screen

The start menu provides the following interface (just a reference draft here, to be changed in design) with several buttons:

- **Play** - brings the player to the selection of the role and then to the matchmaking;
- **Species** - contains a description of the powers and the statistics of each car;

- **Story** - explains the context of the game, the events that have happened and the story of the species;
- **Leaderboards** - shows the rankings of players (can be filtered in drivers and shooters), species (which species is winning the season) and medals (ranking for trophies);
- **Settings** - let the player adjust the game settings.



Start menu.

SPECIES

Shark	Lion	Eagle	Rhino
Health Attack Fire rate Resistance Speed Agility	Health Attack Fire rate Resistance Speed Agility	Health Attack Fire rate Resistance Speed Agility	Health Attack Fire rate Resistance Speed Agility
OFFENSIVE ABILITY <small>Lorum ipsum dolor sit amet, consectetur adipiscing elit, sed</small>	OFFENSIVE ABILITY <small>Lorum ipsum dolor sit amet, consectetur adipiscing elit, sed</small>	OFFENSIVE ABILITY <small>Lorum ipsum dolor sit amet, consectetur adipiscing elit, sed</small>	OFFENSIVE ABILITY <small>Lorum ipsum dolor sit amet, consectetur adipiscing elit, sed</small>
DEFENSIVE ABILITY <small>Lorum ipsum dolor sit amet, consectetur adipiscing elit, sed</small>	DEFENSIVE ABILITY <small>Lorum ipsum dolor sit amet, consectetur adipiscing elit, sed</small>	DEFENSIVE ABILITY <small>Lorum ipsum dolor sit amet, consectetur adipiscing elit, sed</small>	DEFENSIVE ABILITY <small>Lorum ipsum dolor sit amet, consectetur adipiscing elit, sed</small>

Species.

STORY

The game is set on our World, in a remote future. Since the humans had left the Earth to move to one of the several exoplanets they had discovered, centuries have passed and Nature has started to re-seize of all that had been stolen to her so all the cities, the monuments and the buildings created by men's ingenuity had been abandoned and covered by dust, grass and mud.

The animals left on the Earth, time after time, evolved, up to the point to get humanoid appearance and behaviours: not so far, they started to act like men, trying to figure out how our descendants' technologies worked, how they interacted and what those strange symbols they wrote could mean. Among all the species, four have emerged: the Eagles, the Lions, the Rhinos and the Sharks, each of them with an increasing desire to become the dominant faction, which would have reigned over all the others.

GO TO
SHARKS' STORY

GO TO
LIONS' STORY

GO TO
EAGLES' STORY

GO TO
RHINOS' STORY

Story.

LEADERBOARDS

General	Sharks	Lions	Eagles	Rhinos
1 Michele	200			
2 Loris	190			
3 Andrea	180			
4 Giovanni	170			
5 Matteo	160			
6 Giulia	150			
7 Luca	140			
8 Stefano	130			
9 Martina	120			
10 Federico	110			

YOU 88
Position: 19

Leaderboards.

SETTINGS

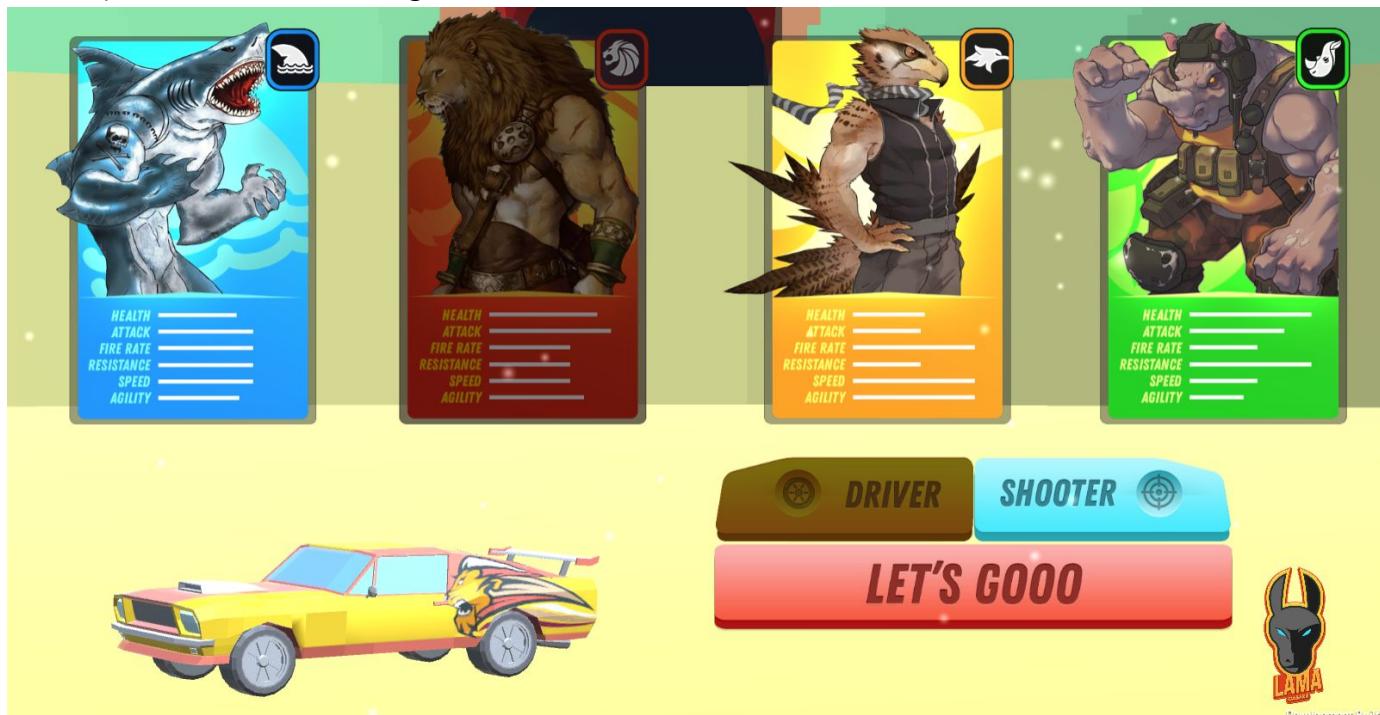
Map resolution	[Progress Bar]
Graphic quality	[Progress Bar]
Audio volume	[Progress Bar]
Map resolution	[Progress Bar]
Mouse sensibility	[Progress Bar]

Controls	
Front	W
Right	D
Left	A
Back	S
Brake	M

Settings.

5.4.3 Characters selection

In this phase the player has to select the species he wants to play and the role he wants in the game (driver or shooter), then the matchmaking starts:



Characters selection.

5.4.4 Matchmaking

The matchmaking screen is the same of the start menu, but with a timer on it that shows the estimated time to find the match and the elapsed time.

Since Hypogeaum is designed to be a competitive game and we want matches to be balanced, the matchmaking is based on players' ELO rankings, which will increase winning matches and will decrease losing them.

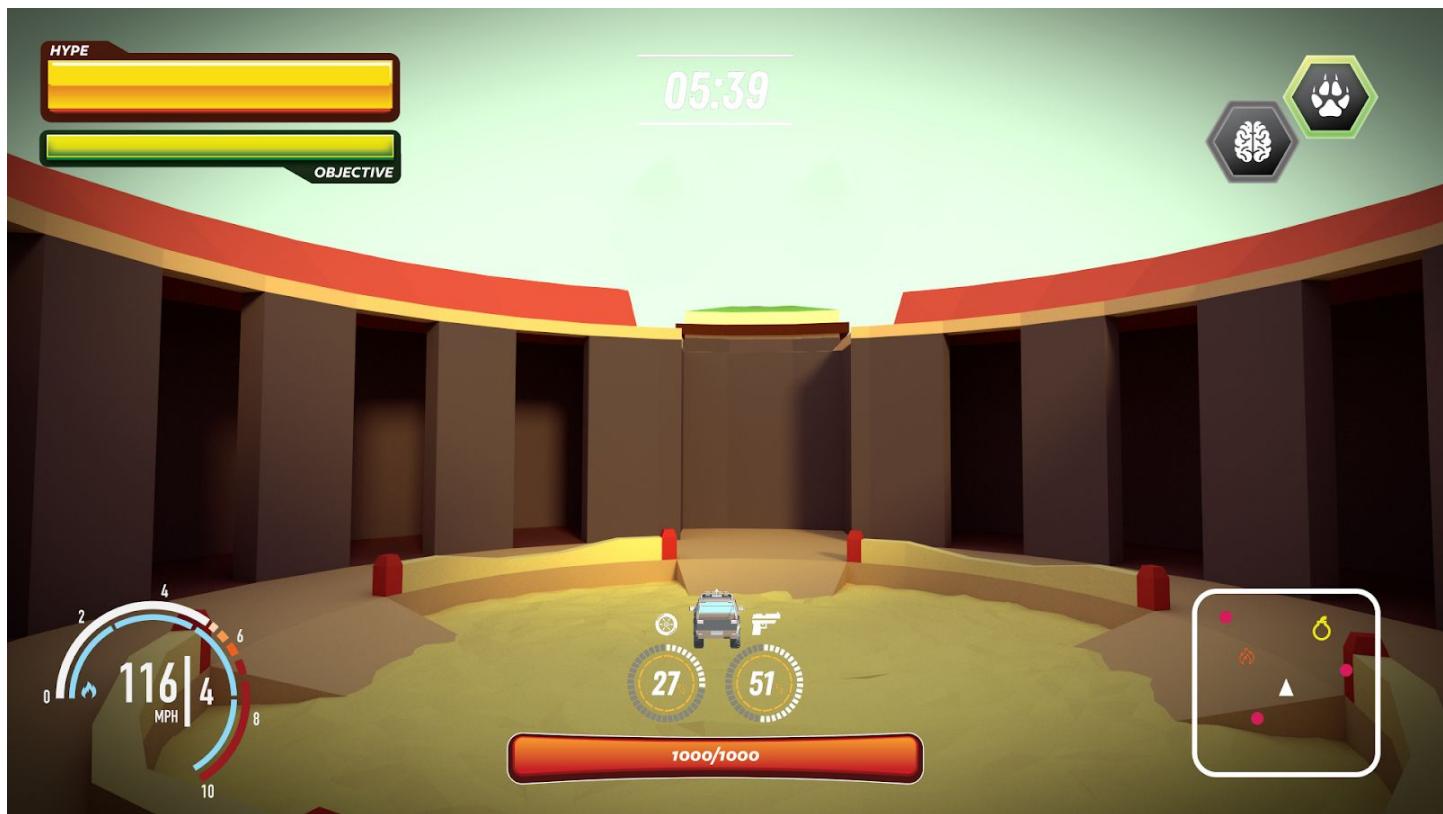
5.4.5 Loading

The loading screen shows some wallpapers in loop and a loading bar at the bottom.

5.4.6 Game UI

The game UI has to show many important informations for the players:

- Health points;
- Audience level;
- Objective percentage;
- Obstacles in the map;
- Paths (reason or instinct);
- Special move percentages (one for the driver, one for the shooter);
- Time;
- Speed.



HUD of the game.

5.5 Rules

- 4 teams, 8 players (2 players in each team);
- A role is given to the players for the whole battle, so they cannot change it during the match and cannot have both;
- When the health of the car becomes zero, the team is defeated, and the players are taken back to the menu;

- When a car is hit by an enemy bullet, its health decreases by an amount of damage that depends on the species' characteristics;
- Bumping into an enemy car will damage both the vehicles, according to their respective resistance stat, while bumping into a wall does not damage the car;
- There isn't friendly fire (that is players can not shoot themselves);
- The special abilities of the team can be used only when completely charged;
- Players' cars cannot leave neither the arena nor the car;
- The battle has a time limit of 15 minutes, set to prevent stalls. When time's up, the team that has more health left wins. Otherwise a 2 minutes overtime starts. If at the end the teams have the same health left, then the game is tied;
- The medi-kit restores 20% of team's health, without overtaking the maximum value.

5.6 Scoring/winning conditions

The game is won by the last team standing in the arena before time's up. If there are two or more teams alive after 15 minutes, the winner is the team with more remaining health. If there is a tie, 2 minutes of extra time are added at the end of which the winning conditions are checked again. If none of the teams satisfy these conditions, the game ends with a draw.

5.7 Modes and other features

The game has only a multiplayer mode, where 2, 3 or 4 teams of two players face each other in a free-for-all battle. To cope collaboration issues within the 2 players' teams, an in-game team chat will be developed (available only during a match), with the possibility to switch to a game channel where everyone in the lobby can talk if needed.

6 Game Characters

6.1 Characters design

The player can choose one of the four factions before starting the matchmaking.

Each faction has a different type of car, weapon and different types of special abilities for attack and defense. The characteristics of the cars, the damage caused by weapons and the special effects have been balanced to ensure that no faction has an advantage.



6.2 Playable characters

To balance the statistics it was calculated:

Banners and badges of factions, they are placed at the four cardinal points of the arena, above the entrance arches, one for each arch.

- for each car, how many hits it must score to destroy another car, multiplied by the time it takes to recharge the weapon, so as to have the minimum survival time (practically standing still);
- as for the collisions, it was calculated how many can be received before being destroyed, increasing speed and agility for weaker cars.

6.2.1 Lions



It's still true that lions are the kings of the forest. They are the most aggressive species, which does more physical damage.

Stats

Health	Attack	Fire rate	Resistance	Speed	Agility
1200	9	6	6	6	7

Physical dimensions

Weight (kg)	Width (cm)	Depth (cm)	Height (cm)
3000	456	180	145

6.2.2 Rhinos



If a tank was an animal, it would be a rhino. They are the most resistant species.

Stats

Health	Attack	Fire rate	Resistance	Speed	Agility
1500	7	5	9	5	4

Physical dimensions

Weight (kg)	Width (cm)	Depth (cm)	Height (cm)
4000	516	206	200

6.2.3 Eagles

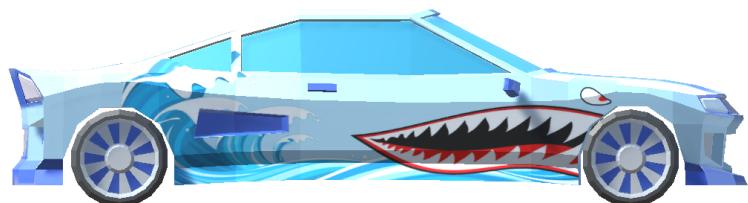
"Eagles is the name, speed is their game", fast attacks and elusive defence.

Stats

Health	Attack	Fire rate	Resistance	Speed	Agility
800	5	9	5	9	9

Physical dimensions

Weight (kg)	Width (cm)	Depth (cm)	Height (cm)
2000	366	163	149

6.2.4 Sharks

The shark species is the most balanced, their versatility in battle is their trump card.

Stats

Health	Attack	Fire rate	Resistance	Speed	Agility
1000	7	7	7	7	6

Physical dimensions

Weight (kg)	Width (cm)	Depth (cm)	Height (cm)
3000	406	178	144

6.3 Non playable characters

Non-playable characters are governed by artificial intelligences, for further reading refer to [Mobs](#).

6.3.1 Tank robot

Tank robot have guns. They have 4 spider robots in formations around.

Stats

Health	Attack	Fire rate	Speed
300	3	3	4

Physical dimensions

Weight (kg)	Width (cm)	Depth (cm)	Height (cm)
1000	170	170	170

6.3.2 Spider robot

Spider robots come out of the arena pits. These are weak enemies, but very annoying, because they walk in formation of 4 around a tank robot.

Stats

Health	Attack	Fire rate	Speed
100	1	0	4

Physical dimensions

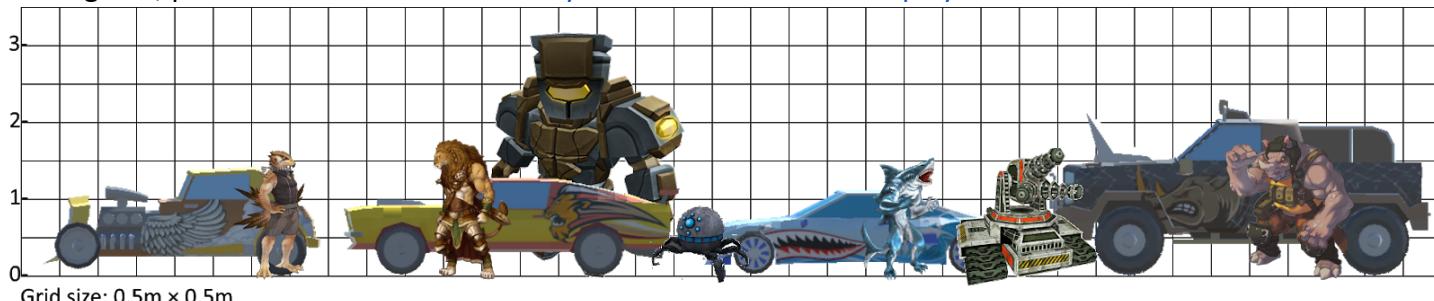
Weight (kg)	Width (cm)	Depth (cm)	Height (cm)
200	100	100	100

6.3.3 Goliath

	<p>The goliath is 4 meters high, it is very slow, but it has devastating power.</p>		
Stats			
Health	Attack	Fire rate	Speed
10000	10	1	2
Physical dimensions			
Weight (kg)	Width (cm)	Depth (cm)	Height (cm)
6000	250	130	300

6.4 Size comparison

All vehicles and enemies have been designed to have different dimensions and masses to increase the reality of the game, please refer to the table in [Playable characters](#) and [Non playable characters](#).



Size comparison between all the characters and vehicles.

7 Story

7.1 Synopsis

Since humans had left the Earth, centuries have passed and the blue Planet is now inhabited only by animals, that have learned to manage the technology of our descendants and to create their own. From that moment, a long war among the different species has taken act, to gain the supremacy. Inspired by the ancient books on "mythology", they decided to set their battles in a huge arena: the Hypogeum. Now, only four teams have left – Eagles, Lions, Rhinos and Sharks – and the outcome is more uncertain than ever.

7.2 Complete story

The gameplay reflects the part of the story where the species are fighting; playing the game and completing the matches doesn't carry on the story.

All the developed narrative is included in the backstory and has not a direct impact on the gameplay.

7.3 Backstory

For the complete backstory, see chapter [8 The Game World](#).

7.4 Narrative devices

Since the story is not narrated through the gameplay, the player will be able to access it through a specific menu in the home of the game, in which he can read the complete story of the world and of each faction.

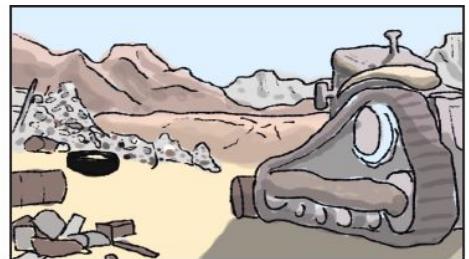
7.5 Storyboard



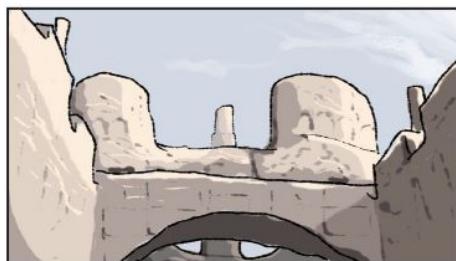
It's been centuries since humans definitely abandoned Earth...



Cities are now abandoned



and animals have learnt to control human technology



and now four factions fight a revolutionary war in an arena, to establish the new dominant species.



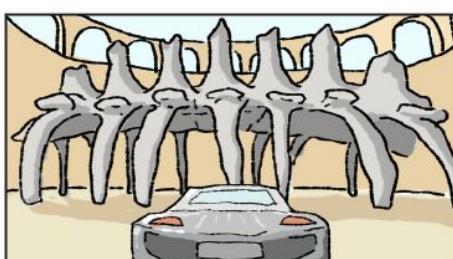
This is Hypocean!



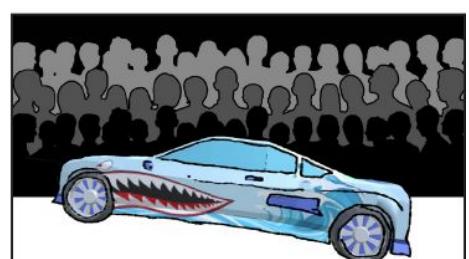
A "race-and-shoot" co-op challenge!



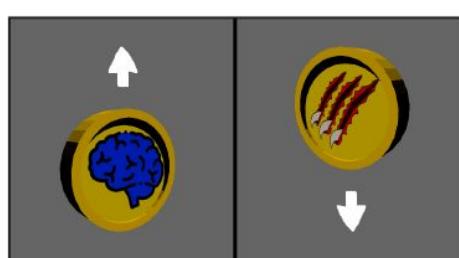
Play for Sharks! Lions! Eagles! And Rhinos!



Run together! Fight together!



Hype your audience with stylish moves!



And choose your nature! Are you rational and evolved or a feral beast?

The storyboard.



It's co-op only, so find your best mate!



Lama games presents HYPOGEUM

8 The Game World

The game is set on our World, in a remote future. Since the humans had left the Earth to move to one of the several exoplanets they had discovered, centuries have passed and Nature has started to re-seize of all that had been stolen to her so all the cities, the monuments and the buildings created by men's ingenuity had been abandoned and covered by dust, grass and mud.

The animals left on the Earth, time after time, evolved, up to the point to get humanoid appearance and behaviours: not so far, they started to act like men, trying to figure out how our descendants' technologies worked, how they interacted and what those strange symbols they wrote could mean. Among all the species, four have emerged: the Eagles, the Lions, the Rhinos and the Sharks, each of them with an increasing desire to become the dominant faction, which would have reigned over all the others.

Leaded by the thirst for power, these clans started a long war to determine who among them should have been the sovereign one, causing death and destruction in a world that had borne already too much with humans and their clashes. Since all the species have risked the extinction, the leaders of each faction decided to stop the war and set their battles in a huge arena, where couples of heroes belonging to each clan would have face their opponents to show who will be the bravest and best one, as humans did in their history several millennia before.

The arena was of elliptical shape with several levels of bleachers surrounding it, and has been built in a desert, where the sun always shines, so its field is completely covered by sand. The clashes would have held during the day, so that anyone could admire the heroes' feats. To improve the level of entertainment, the matches were played with each team on a car, where one of the two members should have been the driver and the other was in charge of shooting the enemies with his species' favorite weapon, up to the point that they will be the last faction standing in the arena: only then the battle ended. For these reasons, up to now, the arena is the only level where the players can act and fight against their enemies, where they can move in the entire area during each match. The battles are set in a chaotic scenario: the audience continually incite the heroes to do their best, whereas other players try to defeat them, and traps and NPCs never stop to hamper the team.

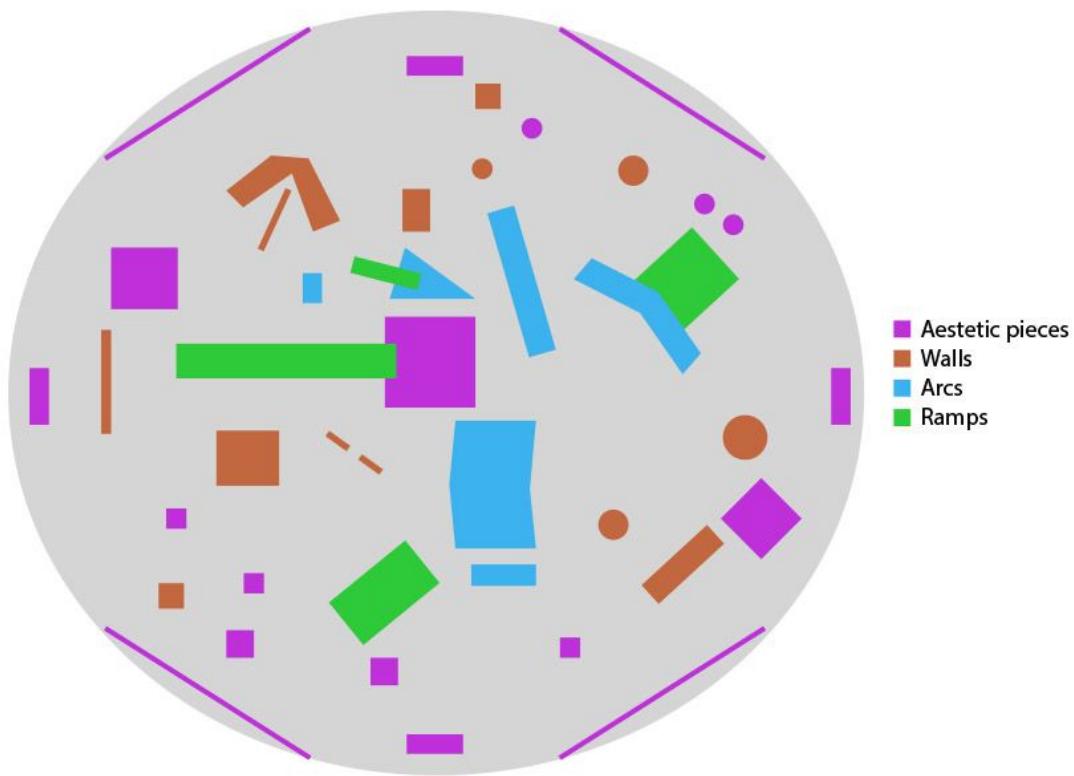
Periodically, among all the species, the one with the highest score (assigned based on its heroes' abilities and results) is declared to be the dominant one for the next war season, whereas the other ones will have to try to put an end to its supremacy. In order to award and push the bravest and most able heroes to fight for the glory of their species, the best players of the winning faction will be rewarded personally by their leader.

9 Level design

9.1 Maps

In the first version of the game there is only one arena, other arenas will be released in subsequent seasons.

9.1.1 Arena 1 - Colosseum



Game arena.

9.2 Prototype

The following features have been implemented in the game prototype:

- Faction selection;
- Type of game selection: shooting or driving;
- Lobby;
- Multiplayer online;
- Winning condition;
- The first arena with some props;
- 4 different cars with different properties;
- 1 type of weapon;
- 1 type of bullet;
- Health and speed bar.

10 Media

10.1 Music and sounds

10.1.1 Musics

- No soundtrack in game;
- In the menu, reference: Swing Doors - Allan Gray (https://www.youtube.com/watch?v=VeD8USz_jVg).

10.1.2 Sounds

List of the necessary sounds.

10.1.2.1 In game

- Engine;
- Drift sounds;
- Collisions with cars;
- Collisions with walls;
- Bullets shot (different for every car);
- Bullets hitting;
- Audience screaming;
- Drums;
- Ability activation;
- Air sound when reaching high speed;
- Traps (different for every trap);
- Spiders movement;
- Mob Leader movement;
- Goliath movement;
- Goliath shooting;
- Collisions with mobs;
- Collecting reason/instinct coins;
- Death sound;
- Win sound.

10.1.2.2 In menu

- Match found sound;
- Game queue starting;
- Animal sounds (in character selection).

10.2 Version control

The web-based hosting service for version control that we use is GitHub.

For changes and access requests contact the administrator.

10.2.1 Information

Url: <https://github.com/andreadecosmo/LamaOGDAIVG>

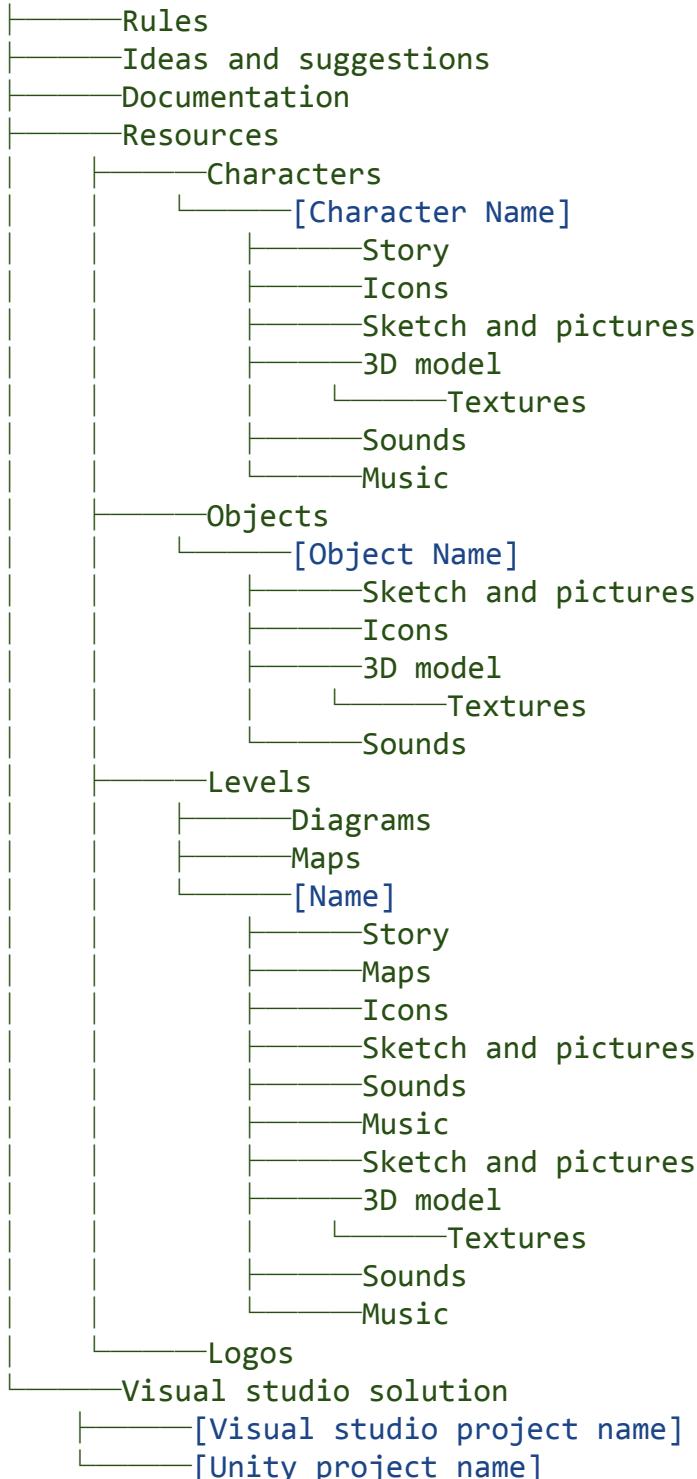
Administrator: Andrea De Cosmo (andrea.decosmo@studenti.unimi.it)

10.3 Paths and project structure

The project directory is the one that contain the .git folder (regarding git see [Version control](#)).

10.3.1 Project structure

Hypogaeum



10.4 Export formats

Some file types have specific export formats:

File type	Extension	Format
3D objects	.blend	
Raster image	.png; .jpg; .tiff	32px; 256px; 512px; 800×600px
Vector image	.svg	2000×2000
Music and sounds	.mp3	320 kbps

10.5 Media list

Group	Media type	Description
Menu	Image	Title screen background
		Species scene background
		Story scene background
		Leaderboards scene background
		Setting scene background
Level	3D model	Arena 1
	Image	Mini map
Character	Image	Lion card
		Eagle card
		Rhino card
		Shark card
		Lion's car
	3D model	Eagle's car
		Rhino's car
		Shark's car
		Spider robot
		Tank robot
		Goliath

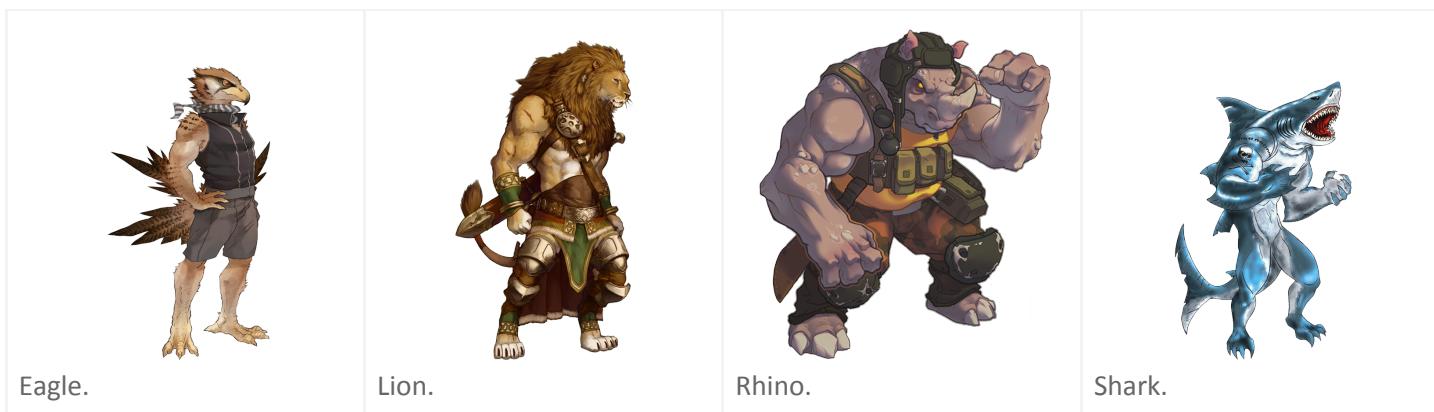
HUD	Image	Speedometer
		Objective bar
		Hype bar
		Health bar
		Reason and instinct coins
Prop.	3D model	Ramps
		Dinosaur skeletons
		Arch of Triumph
		Barrel
		Banners
		Flags
Weapon	3D model	Lion's spear gun
		Eagle's ballista
		Rhino's cannon
		Shark's harpoon cannon
		Rhino's shield ability
		Lion's grenade ability
		Eagle's net ability
	Particle system	Tornado
		Explosion
		Fire
Bullet	3D model	Spear
		Arrow
		Cannon ball
		Harpoon
Item	Image	Paw coin
		Brain coin

	3D model	Coin
		Power up coin
Traps	3D model	Mine
		Spin trap
		Mud
		Geyser
		Meteorite rain
Music	Sound	Menu theme
SFX	Sound	See Sounds
Voice	Sound	Audience voice

10.6 Additional reference images

Following all the additional reference images for the artists.

10.6.1 Characters



10.6.2 Cars



10.6.3 Enemies



Spider robot.

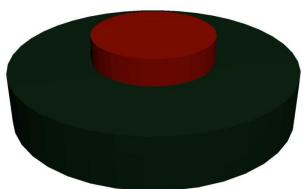


Tank robot.



Golem robot.

10.6.4 Traps



Mine.



Mud pool.



Spin trap..

10.6.5 Power-up / Rewards



Reason and instinct coins.

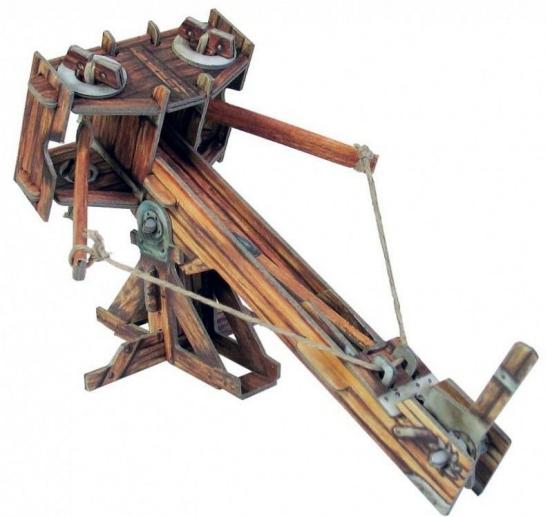


Audience hype coin.

10.6.6 Weapons



Cannon.



Ballista.

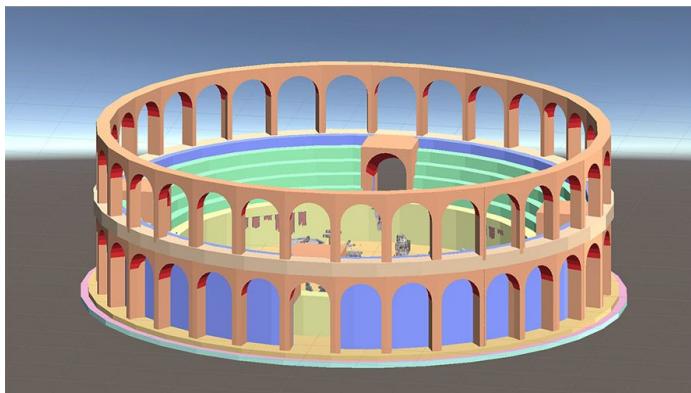


Harpoon cannon.

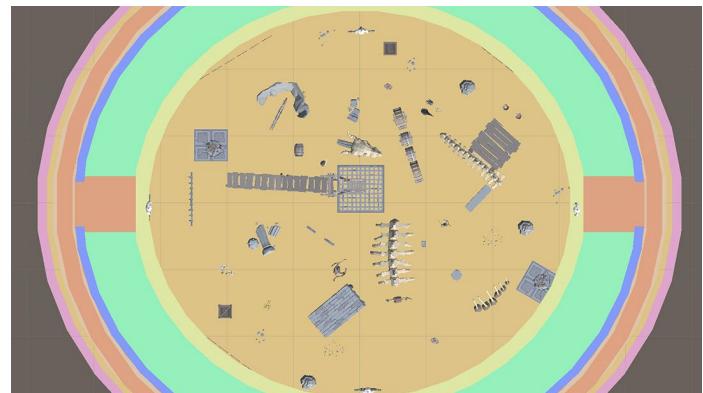


Spear gun.

10.6.7 Settings

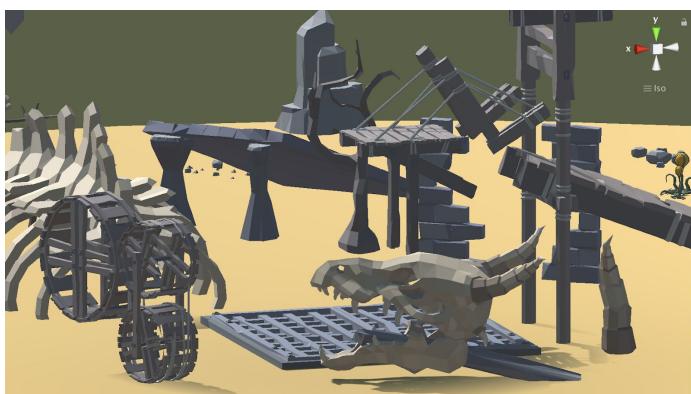


View from the outside of the map.



Vertical view of the map.

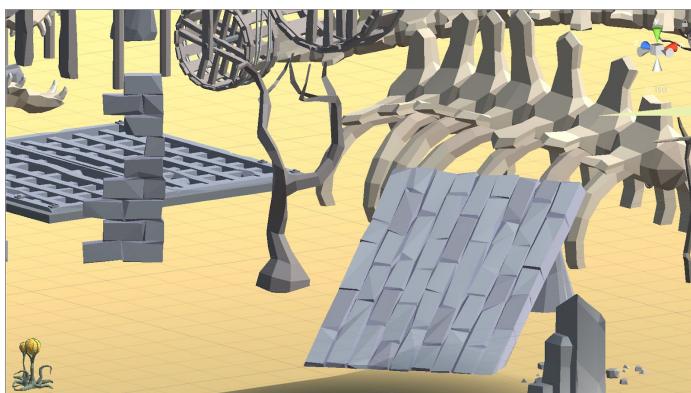
10.6.8 Arena props



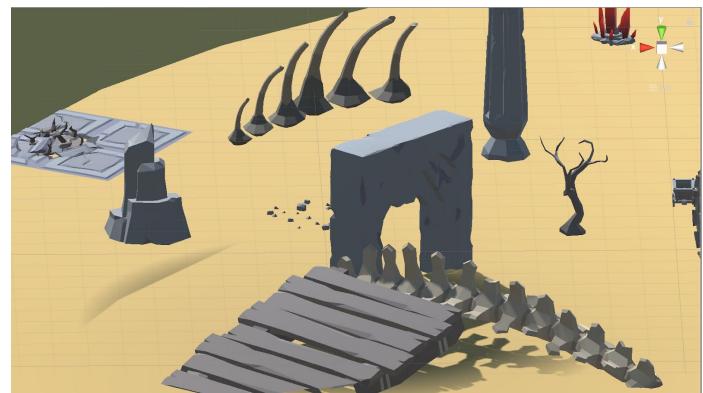
Detail of the arena.



Detail of the longest ramp.



Detail of a medium ramp.



Detail of an arc.

10.6.9 Other resources

Other images are in the folder ./Resources/ or on GitHub:

<https://github.com/andreadecosmo/LamaOGDAIVG/tree/master/Resources>