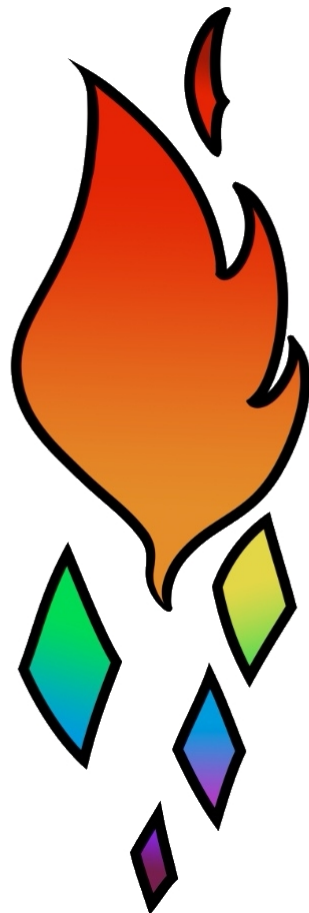


SpaceQbit

by Sparks Studio



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Contents

1	<u>Introduction</u>	3
2	<u>Member presentation</u>	5
3	<u>Project presentation</u>	6
3.1	<u>To start from scratch</u>	6
3.1.1	The game in itself	6
3.1.2	Graphic style	6
3.1.3	Inspiration	7
3.1.4	Goal	8
3.1.5	Collaboration	8
3.2	<u>Project concept</u>	9
3.2.1	Basic concept	9
3.2.2	Weapons	9
3.2.3	Character	10
3.2.4	Hub and Maps	10
4	<u>Project realisation</u>	11
4.1	<u>Task division</u>	11
4.2	<u>The Softwares</u>	12
4.3	The development planning	13
5	<u>Conclusion</u>	14
6	<u>Dictionary</u>	15

1 Introduction

SpaceQbit is an ambitious game where the procedural generation plays a big part. When we decided to create the group, everybody knew what they wanted. The main concern would be to be able to implement all of our ideas in the game, from the obvious one to the weirdest one. And this is under the name of Sparks Studio that we decided to create our game : SpaceQbit. One thing to highlight is that Sparks Studio is composed of experienced players in various fields of video games.

All of our precious experience will be used in this project to offer our vision of the ideal game. However, none of us has experience as a game developer so this project will be a first try for us. And we want to make a good game that the player will enjoy to play rather than one for which he forces himself because he knows he has paid for it and does not want to feel like he has wasted his money. Indeed, if the project progresses right and proves itself successful, we plan to commercialize it. Thus, we do not only have to think about what we want, but also what a player would like. This might sound too ambitious but great things cannot be achieved without great expectations. Nonetheless, we keep in mind that this game must please us first.

SpaceQbit will be a Hack'n Slash/Rogue-like game. We chose this particular type because it fits best our main goal for this project. The plus with this game, is that it will be accessible to all kind of player. On one hand, the story will be entertaining enough for a casual player and on the other hand, the advanced players will discover (and probably master) the in-depth weapon system and the skills tree. The Hack'n Slash became famous with games such as *Diablo III* from Blizzard Entertainment, or *Path of Exile*, developed by Grinding Gear Bear. They are based on the same concept: a good replay possibility, gear grinding and levels of difficulty.

The tasks will be divided so that each member works on what he knows and learns new things at the same time. By using each one's experience, we will optimize the operations of the project. That is our team's strength: members with high skills in different fields rather than jack of all trades. The work will be more efficient. The fact that we are four experienced programmers allows us to consider seriously other aspects of game design. One really important point for the group is to keep up with the schedule. Adding the fact that some tasks will be achieved quicker than others, we plan to add as much features as possible.

2 Member presentation

Zacharie "Nox" Constans I began to have interest in game development and more generally programming since ninth grade, and I started to code the same year with a MOOC on Javascript on khanacademy.org. But I stopped soon after and learned Python, alone at first on openclassrooms.com and later during my final year of high school by being part of a special course made to prepare the entry in the "Prépas CPGE".

For me this project is an opportunity to learn more about how programs are developed, how can different people work on the same project together and a way to enhance my programming skills.

Christophe "HandSpinner" Terreaux - Group leader Since I was young, video games have a part in my life. I have done my first corporate internship in middle school in the society Kylotonn. Working on a video game is one of my objective since I was nine years old. Working on this project will be my long awaited opportunity.

As the leader, my main goal is to keep a rhythm in our work, to take the good decisions when needed and also to keep good relationship between the members of the group.

As a member, this will primarily be my creativity and also my game design's idea which will permit to have a true game.

Gautier "Gogo" Picard I started programming around thirteen years old in school (9th grade) and outside with a friend. I understood soon after that I would like to work in IT. At the time, I believed working on video games was the one and only path for me. Today, even if I dropped this idea a little to look closely to other possible careers, my interest in video games has not decreased since and I am more than happy to be given the possibility to work seriously on this project with such a team :)

Erwan "XiaoJiBa" Vivien Before EPITA, I have always been interested in the making of video games. I've done some really tiny projects but nothing was satisfying me.

I have always been a gamer ! This project is the perfect cross between educational programming and passion.

3 Project presentation

3.1 To start from scratch

3.1.1 The game in itself

When we discussed on the game for the first time, we all wanted the same thing: travel through the space, discovering planets in a either funny or serious atmosphere, getting better equipment, fighting stronger enemies. Thus it was easy to make everybody agree on the direction the project should take.

3.1.2 Graphic style

This one was was a little bit tougher. In fact, we knew that we would be disappointed with the result if we would use other graphics style than pixel art. None of us have enough skills in graphic style to provide the perfect graphics. It would also have been a loss to spend too much time on graphics, and thus, leaving us less time to add some interesting features. This kind of graphics (pixel art) can sound too generic so it will be a real challenge to propose a neat aesthetics.

Our game will mainly be in 2D but also in 3D. With a pixel art style, as the game takes place in the space and on many different planets, we can keep coherence with the different atmospheres of the planets. For example, moving from a planet where you are chased by samurai and ninja on scooters to a planet where zombies and unicorn live in peace might be a little bit too risky with 3D assets, where the assets can be from different qualities. Thus, the immersion of the player could be spoiled.

Our character will have a 1/2, 1/2 proportion, so a head of same size as the body. Our ultimate goal is to have graphics similar to *Enter The Gungeon* developed by Dodge Roll. All the animation will be handmade in order to have not only a good game but also a good looking game.



Figure 1: First drafts of the Designs

3.1.3 Inspiration

There are many different games that have inspired us but we will list the most important ones:

Diablo : One of the most famous franchise of video games. The game takes place in a medieval/fantastic world. The player chooses between six characters, each having their specification, and has to fight against demons. This represents the perfect mix between a narrative experience, a role playing game and a Hack'n slash. This game inspired us in its design ideas.

Path of Exile : The most famous Hack'n Slash. It is similar to *Diablo III* but more for an experienced fan base. Huge RPG aspects, grinding gear and character personalizing.

Borderlands : Developed by Gearbox Software. Mainly from a narrative point of view but also with its famous gear system and its character design, this game is one of our inspiration.

Enter the Gungeon: Its art style will be the "face" of our game. The player chooses between five characters, each having their specifications, and has to go deeper in the Gungeon, in order to find the Time bullet to kill your past. The humor, the level-design, the movement, the character design are such inspiration for us.

Dofus : Dofus is a massive multiplayer online role playing game developed by Ankama, a french studio. You have to choose between more than 12 species and upgrade your character until the last level. Most of the game is played with either friends or players that you have met. Most of us played

or play this game so its universe inspired us, mainly with its inventory and equipment's system.



Figure 2: Game sequence of Enter the Gungeon (what graphics we are aiming at)

3.1.4 Goal

The goal of our project is to create a game that can be liked by any type of gamer. Hack'n Slash is most likely to target a tiny community of players, so we have to develop some aspects to attract a richer community. It can be the casual gamer who like to spend some time playing video games alone or with friends, but also the one who loves to theorize and plays again and again to get better gear.

This will be pretty hard because we may lost ourselves under details or features, or promote an aspect of the game that some people might dislike. In all cases, we know that not everybody will like our game, but it will be great if most do and that is what we plan to work on.

3.1.5 Collaboration

To have a living world, we need characters that the player will not forget. This process goes through the design of the characters. That is the reason why we needed somebody with graphics' skills to create stylized characters. We are going to be helped by Antheaume, Zacharie's brother-in-law.

You can check his design in the picture above. His help will only concern the design of characters and will not affect the in-game render.

3.2 Project concept

The game will be a 2D game with some pseudo 3D interactions. Thus, the game will inherit characteristics from a few different genres such as Roguelikes, Hack'n Slash, but also from Role-Playing Games (RPG). The game is thought in a way such that the death of the player's character implies some penalties but not too burdening, allowing an easy replay. The game will have a Top-Down view of the world, like in *The Legend of Zelda* (first of the name), *Pokémon*, and closer to our project, *Enter the Gungeon*.

3.2.1 Basic concept

The player embodies a character moving from a planet to another one to find the SpaceQbit. The game is thought on the basis of an action-exploration game. The player will navigate between different planets with diverse environments.

On each planet, two separated areas will be accessible: the first one, manually created, corresponding with the "story" mode of the game and which will allow the player, after finishing it and beating a boss, to get access to the next planet. The second area of the planet is, this time, procedurally generated and will allow the player to get experience points to enhance his character or to get new weapons.

3.2.2 Weapons

The combat part of the game will be based on the use of weapons which will have different statistics and abilities. The weapon's statistics will be influenced by the weapon's category but also its scarcity and its name. Furthermore, we plan to add a random effect depending on the planet. The generated zone will have some unique weapons on each of them.

There will be two kinds of weapons : the close combat ones such as swords and the main type of weapons that will be present in the game, the ranged weapons. The ranged weapons will have a great set of "subtypes" going from the wand to the minigun going through by the T-shirt thrower.

Depending on the weapon, it will have a required level to be used.

3.2.3 Character

The Character will start with preset statistics and an average affinity with all weapons. Later the character will have to choose between different classes that will affect the affinity with the different weapons, change the basic statistics, and the abilities of the character (basic and unlockable).

The character will, through the game, unlock different skills, these skills will be of two types : the active ones and the passive ones. The player will have a limited number of active skills. Skills will be obtained by trading them with <skill points> (name is still under research).

During the game, the player will earn experience and this experience accumulation will eventually lead to a level up. With each gained level, the player will have the choice to increase the value of one of his statistics, and a fixed number of <skill points>. As previously said, weapons require a certain level to be used.

3.2.4 Hub and Maps

Before playing on the maps the player will be on the Hub. The Hub is the Ship of the character. While in the Hub, the player will have the possibility to choose his weapon, and skills before going on the planets. The Hub will also be the place where the player chooses the planet where he wants to travel and if he wants to go to the "Story" zone which is manually created or the "Adventure" zone which is procedurally generated.

The Hub will be fairly customizable.

4 Project realisation

4.1 Task division

Graphics will be under Christophe's responsibility. He will be in charge of the drawing of the maps sprites, the characters, and all relatives to the graphics. This part of the project is, for us, very important as we want the player to be visually attracted to the game, as we said earlier. Furthermore, this type of game has a particular graphic design and we plan it to be one of the strength of the game to lead to a great one in the end. Zacharie, with the help of Antheaume mentioned above, will complement Christophe in this task.

Gautier will take care of the *Website*. Everyone will be giving their ideas for its design and structure but he will mainly be the one to work on it because of his previous years of experience with HTML, CSS and JavaScript (jQuery). Nevertheless, we designated Erwan as his substitute and will help him to tweak and refine the end result. We want the website to be coherent with our game, so we will really work on the visual part to have something clean that sets the same atmosphere as the game at first sight.

User interface is a part that should be done by almost everyone since it is a key part of the game. We want the whole team to express its ideas, for the simple reason that this is a team project, and we want to work together as soon as we have the possibility so it really ends up being our game and not a game made by the fusion of the work of four individual people.

Network is, we think, the most challenging part of this project as none of us has any experience with networks. It is obvious that there will not be anyone in charge for that part but we will all work on it so we can help each other. That way, it will probably be done faster and every members would have had the possibility to express their ideas concerning how it should be done. Moreover, it will allow us to learn something new, and certainly useful for the future.

Programming will obviously be taken care of by everyone, as it is the fun part, and everyone should take pleasure and have some fun working on the project. Unlike for the network, we might work more individually on this part to improve the efficiency as we all have our own set of skills. However, most of the ideas will still be discussed and agreed by the whole team.

	Erwan	Christophe	Zacharie	Gautier
Network		⊕		⊕
Graphics		⊕	⊕	
Programming	⊕		⊕	
User Interface	⊕	⊕	⊕	⊕
AI	⊕		⊕	
Website	⊕			⊕
Musics		⊕		

Description :

⊕ is the first delegated to the task.

⊕ is the second one.

4.2 The Softwares

Here is a list of the softwares used for the project :

Photoshop will be used to draw all the 2D assets of the game.

Adobe premiere will be used for the animations or the effects.

Rider and *Visual Studio* will be used to write the C# code.

Adobe Audition will be used for the sound design along with *Audacity*.

Git Kraken will be used as Git version control manager. Diverse softwares will be used to edit LaTeX files such as : *LaTexila*, *Notepad ++* or *Overleaf*.

Atom will be used to develop the website.

4.3 The development planning

Oral	1	2	3
Website	40%	60%	100%
User Interface	40%	70%	100%
AI	10%	50%	100%
Programming	40%	80%	100%
Graphics	40%	70%	100%
Multiplayer	40%	90%	100%

5 Conclusion

As you might have seen, our project can sound too ambitious, but it is with high expectations that we get great results. SpaceQbit does not reinvent anything in term of gameplay but tries to enhance what have be done before. We are sure that SpaceQbit will be a fantastic, and we even already plan to work on it after the second semester. Our team is very dedicated. By the end of the project, we will have grown with our game, with a better understanding of some aspects of teamwork and programming.

Being the group leader of a team composed of such talents is a real pleasure for me.

6 Dictionary

Hack'n Slash : refers to a type of gameplay that emphasizes combat, character progression and wearing a better equipment.

Rogue-like : a sub-genre of role-playing video game characterized by a dungeon crawl through procedurally generated levels, turn-based gameplay, tile-based graphics, and permanent death of the player character. Most rogue-likes are based on a high fantasy narrative, reflecting their influence from tabletop role playing games such as Dungeons & Dragons.

Sprites are 2D texture that will mainly be used to display floors and items on the ground. Whereas walls will be 3D textures, helping to render