# Final Report

June 4, 2019


BAS²TRAF

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# 1 Introduction

# 2 BAS$^2$TRAF

## 2.1 Group Presentation

Bastraf is a group project composed of friends, who came to know each other after coming to Epita, as they were in the same class. They did not have an idea of project before forming the group, but they did so because they thought that even if individually they were not the best, they would work better with people they like than with total strangers. As they had already went through a semester together, they knew that they could count on the others and that once the idea was found, they would all work hard to transform it into something concrete.

## 2.2 Members

Raphaël has chosen during his last high-school year, to make ISN (Informatical and Numerical Sciences) so he already made a project (creating an IA able to drive on a circuit on Unity) with Python so he already has some experiences in programming. He participated to already 5 real-life escape game so he has some experience and can help the group on the conception of the project.

Augustin chose, as Raphaël, the ISN course. He had a project in Arduino of a robot which is following a black line on the ground. It was a great project with 3 others friend within 4 months. I hope I will bring a little bit of my experience to the group.

Gaurav Lokwani : I got interest in Computer Science when I was in class 10th and when I completed my 12th grade I decided to join EPITA which is one of the well known colleges for Computer Science and now I further

decide to continue in this field. I am particularly amused by Cyber Security and I decide to pursue my career in this area. I wanted to be a part of this project so that i can learn new things in this domain and i have not created any game before so it is going to be a whole new experience for me to get into the game designing. If i got interested in this area there are chances that i might keep following it and try my best to be a good game designer.

Antoine Solé : I have started to take interest in programmation when i was in class of '3ième'. But at that time i did not have the motivation to seriously start learning it and since then i only made small scale personal project until last year where i had to realise a game with my specialization ISN and my class of SI. At that time i realised that it could be very difficult to work in group and that a lot of communication was needed. I wish that, thanks to my previous experience i can help this group to work together without issues.

## 2.3 Logo

Raphael was the one who did the logos. When he first start thinking about the two logos, (one for the group, one for the game), he wanted something simple and not flashy, just enough to make everyone understand the goal of the game. So he wrote down the name EPISCAPE and asked himself what would give the best comprehension of the idea of the project. He then thought about a running man and put it at the place of the 'I' and since this man wanted to go out, he put an open door at the end of the world, and thus, EPISCAPE's logo was born.
Secondly, for the group's logo, he took each first letter of our names and second names, the vowels are like "negatives" and both S for "Sole" and "Silverio" are regrouped and the S is squared to mean that there are two 'S', it gives BAS$^2$TRAF and you can see the logo at the top of the booklet of charges.

# 3 Project's presentation

## 3.1 Presentation

### 3.1.1 Origins

EpiScape is not the first idea that came out from our brainstorming, we first had ideas about a game similar to Street Fighter or Smash Bros, then we debated around it for around 2 weeks, and at some point the idea of an escaped game emerged and seduced everyone. But we thought that a game in the style of 'The Room' was not good as we wanted something more similar to the one existing in real life. Then we thought that we should first decide were the game will happened, and since it was a game that will be made while we are at Epita and that would stay inside it forever, then the game could happened inside too.

### 3.1.2 Nature

EpiScape is a game in which the player-s will have to escape the school by resolving riddles and deducing his way out. It takes place inside Epita Villejuif's campus in a 3D environment.

### 3.1.3 Goals and Interests

The goal is to make a different kind of escape game, one in which we can have interaction with the setting and modify it, contrary to the majority of known escape game. It will also be different from general escape game as there will be mini-games inside the game that will have to be played, so that there will be more action to do inside the game.

### 3.1.4 EpiScape among video game's history

EPISCAPE is meant to be part of this type of video games called "Escape the room" created in 2001 with Mystery Of Time And Space and has been popularized by Crimson Room in 2004. Nowadays, plenty of game of this type exists as The Room or, in the way that you have to solve riddles and puzzles to, we could talk about the license Uncharted but Episcape does not contain any fights.

## 3.2 Technical and methodological aspects

### 3.2.1 Material Means

Epita gives access to many computer 24/7 and each of us have a laptop and a computer, coding logiciel such as Rider,Blender and SublimeText are free so the coding of the game and of the web page will be handled without problems. Unity will be our main software to code and design the game.

### 3.2.2 Intellectual Means

For this project, intellectual means are basically every books that we could use as well as some web site or youtube channels that may help us, but also our Algorithm Teacher and our ACDCs. We can also always ask for help to our friends or family if we lack inspiration to create the riddles and minigames.

## 3.3 Economical Aspects

We do not have many economical aspects to think about for our game but we know for marketing and communication. We want to make a video game box with a cd, and maybe four t-shirts for our presentations and finally, knowing that our game will be about escape games, we will do one in real life, it will have two goals : first, it will show us how an escape game works and, secondly, it can be seen as team building. Because during an escape game,

we have to communicate and work in group, as well as during the conception of our project.

## 3.4 Task Repartition

It has been modified a certain number of times but here is our final task repartition :

| | Raphaël | Augustin | Antoine | Gaurav |
|---|---|---|---|---|
| **Histoire** | | | | |
| Scenario Single Player | ✓ | | | |
| Scenario Multiplayer | ✓ | ✓ | | |
| **Design** | | | | |
| Caracters | | ✓ | ✓ | ✓ |
| Map | ✓ | | ✓ | ✓ |
| **Gameplay** | | | | |
| Object Interactions | ✓ | ✓ | ✓ | ✓ |
| Network | | ✓ | ✓ | |
| Interface | ✓ | | ✓ | |
| **Other** | | | | |
| Website | | | ✓ | ✓ |

A look at the storyline of the multiplayer mode

# 4 Realization

## 4.1 Scenario

The making of the scenario has been difficult because it is a creational process and you have to create a story in which the elements will coincide, it is difficult because you have to be inspired, sometimes you're just facing the writer's block and can't write anything, instead of the programs that you can code just if you have the ability, writing the story and creating the riddles is difficult, sometimes I came working with my group, they made big progress while I just wrote one line.

The single player was somehow easier than the multiplayer, I had only one storyline to create while on the multiplayer one, I had two storyline to create and make them interact in order to give a real multiplayer experience and not only one player playing next to another one, it has no interest. Nevertheless it wasn't easy, but in the end, I succeed in creating a story for the single player, combining different riddles like polynomials, finding a link thanks to cesar code etc...

Both scenarios began the same way, you're stuck in Epita on the New Year's Eve and you have to find out how to go away to be on time at your party, then the storyline go separate ways.

It has been exciting to create those storyline and seeing my friends making them real part by part.

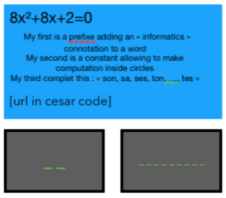
EPISCAPE
Multiplayer scenario

A cinematic shows both players trying to get out of their rooms but they are locked inside and have to communicate if they want to get out, they both use phone call to communicate.

Player 1

A QR code glows, he have to scan it
-> leads him on a website displaying this message « look at your light switches »
-> Symbols appear one the wall and some screens are turned on :


Symbols :

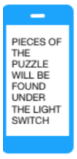



Equation : $8x^2+8x+2=0$
$\Delta = 0$
$x = -8/4 = -2$

Charade : e + π + ta = EPITA

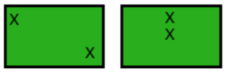
-> you give your answers to your camarade

Url : You find how the letters are shifted and you find the correct url




-> it leads you to a website saying :
« PIECES OF THE PUZZLE WILL BE FOUND UNDER THE LIGHT SWITCH »
but there is nothing next to yours, so you say it to your friend.

Once your friend has given you his answers, screens turn green with symbols :



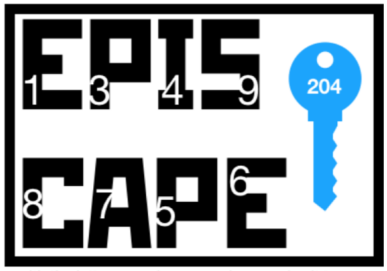

Player 2

When the other one tells him he have to look at his light switch, he turns it on
-> Symbols appear on the walls and some screens are turned on :

Symbols :

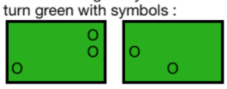

« GO LOOK AT A COMPUTER ! » : It's a mystery number game, you have to find a number between 0 and 99.

EPISCAPE : You listen to what your camarade told you, you go near the light switch, under it, there is a movable paving, you move it, there is pieces of puzzle and a key under it :




with the letters, you have a code, you give it to your friend
-> the key does not work on your door

Once your friend has given you his answers, screens turn green with symbols :

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A look at the storyline of the multiplayer mode

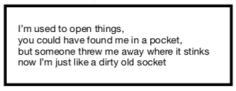
EPISCAPE
Solo scenario

A cinematic shows the player, alone in a room, working on his computer, he look at his watch, it is 10 pm so he has to leave, but his school is locked so he goes back to his room…

A qr code glows on the board next to the player, he scans it and a website displays a text :

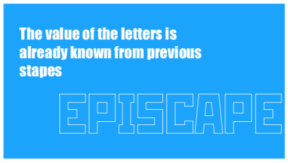

On the ground, under the qr code, a piece of paving seems to be movable, once it is moved, he finds a map + a safe with a padlock with inscriptions on it saying :
« A 4 Beats a 2 Cause 4 - 2 = 2 »

At the back of the map, there is a url changed in cesar code (each letters is shifted in the alphabet) once the player has found the correct url, he founds something like "https//www.stuff.com", he taps it on his cellphone and will arrive on a page displaying :

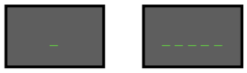


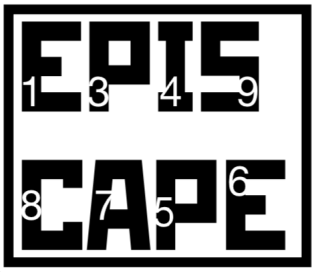

So the player has to understand with this « poem » that he has to find something near the trash, it's a key in fact and it opens the padlock.

In the safe now opened, he finds another key with the number 302 so he has to go to this room with the help of the map and once in the room, he see that the room is already unlocked so maybe the key has another purpose, he has to look in the room for other needs of the key and a light with his locked buy a padlock, he unlocks it and the light in the room turn into uv light, they reveal inscriptions on walls :




At the same time, screens of computers are turned on and display screens with blanks spaces that have to be filled with answers to different enigma :






You find another piece of paving that is movable, inside it there is pieces completing the puzzle EPISCAPE :
so thanks to the order of the pieces of the puzzle it gives 4 different possible :
13498756 15498736
63498751 65498731
one of those works and has to be written on the computer with 8 input

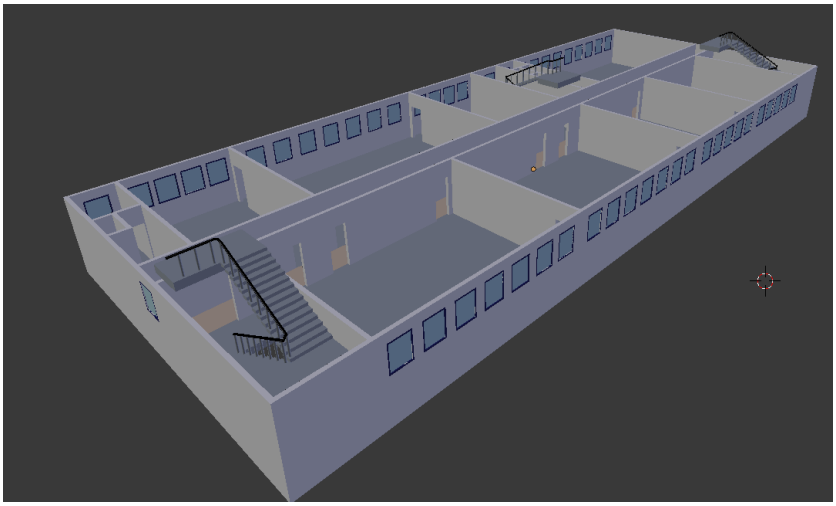
and there is also a paper where it is written « $Bx^2 - Ax + C = 0$ » this is solved thanks to the phrase wrote on the padlock,
A = 4, B = 2 and C = 2
so the result of this polynome is X = 1, so you put 1 on the screen where there is only one input.

A look at the storyline of the singleplayer mode

## 4.2 Map and objects

As we choose to name our game Episcape, one of our first decision was that the map will be the Building VA of Villejuif, and because of that there has been no discussion about what will the building look like, how many floor, room or other things because all we had to do was to replicate an existing building. After that, with how much realism we will be able to do it was to depend on our skills.

The map is one of the most essential part of a game and also one the thing that should be finished the earliest possible, because without it, there are a lots of functionality that cannot be tested. Because of this we wanted to have some part of the map the fastest possible and so doing the whole map before using it was not possible, we then decided to do each floor individually and to assemble them on Unity later on.



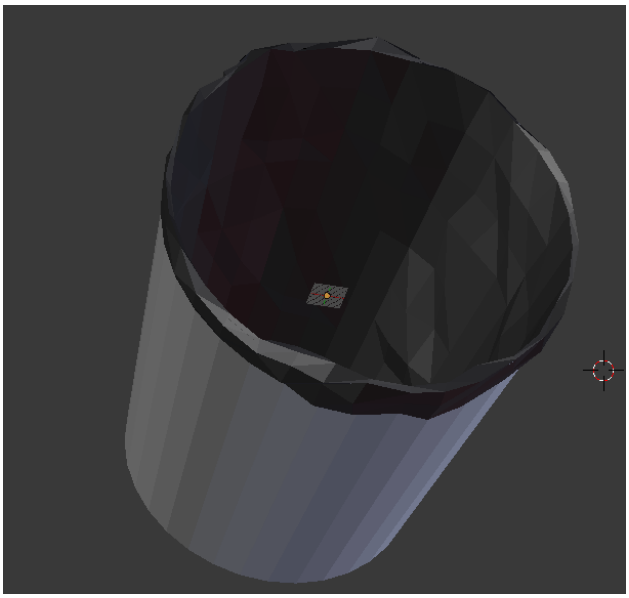
The second floor on Blender

To do the map we had decided to use the software Blender because it is one who is relatively famous, and also because some of our senior spoke about it when they were doing their presentation of their project at the very start of the year.
As none of us had used it the one doing it had to watch a lot of tutorial about this software before being able to start working on the map. We also had to define ratio to used so that every object was scale appropriately, and so we choose that 1 unit on Blender will be equal to 10 cm in real life. The scale of the map was for exemple 200x500 and a door was 8x20.

At first we did only the structure of the building without any color so that we could do some test but that is not a state that can be kept. As even on the structure , there are different color for the wall and the floor, it was not possible to apply only one color to the whole model 3D and be done with it. So we had to cut the model one by one into different part by selecting precisely which part of the object will be taken into which sub part, so that we could apply different color.
But unfortunately, as those software are well made and contain many options, stopping there lead us to some problem, that is, on Blender the color were correct, but once we exported it on Unity, we discovered that the whole floor turned blue, the color of the window. After many research on this phenomena that we thought incomprehensible, we discovered that is was because on Blender there is even a ranking of the color of the object, to say which one has a higher priority.

After doing the structure of the map (the wall, floor and stairs), we were quite happy as we had something who started to look good, but that was only from the exterior. The inside lacked something really important, that is furniture. To do them we used the same scale ratio as for the map, 1 unit on blender for 10 cm in real life, and we discovered that, even if they were way smaller in scale, they were as difficult to to as the buildings because there were not composed only of square edges but mainly of round one, which call

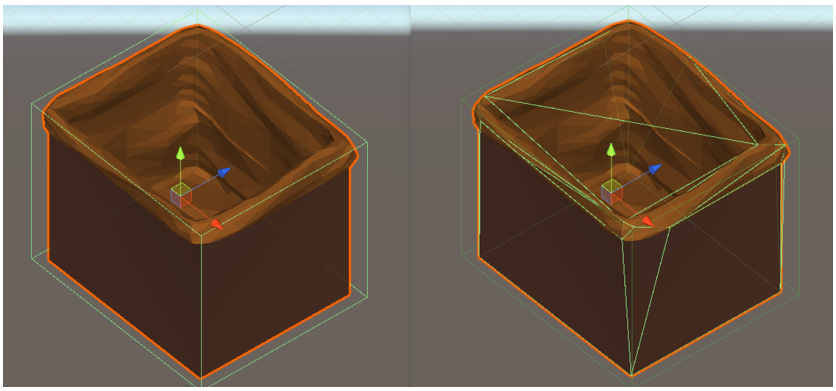
for more complicated shape. More than ten objects have been done like this.



Screenshot of a bin on Blender

After modeling all the object there was another important task to do and a very time consuming one, to place them on the map. As we wanted to be a minimum realistic, we tried to place a number of chair, desk, computer, etc corresponding to the one there actually is in Villejuif. And then we realized another problem. After placing objects only on the first floor, we had already placed a little more than six hundreds of them, the time it took to compile the game increased form three or four seconds to more than thirty, and we realized that we could not let it in that state.
So we search on how to improved this point, and we found what took the most time, it was the collider. The collider are used to calculate where do we consider that an object does exist and will collide with another if it touch anything. For this, Unity has a very useful function who makes collider automatically. But to calculate six hundreds of those collider takes a lots of time and so we decided to create them ourselves, and we had to do that for

each and every objects.

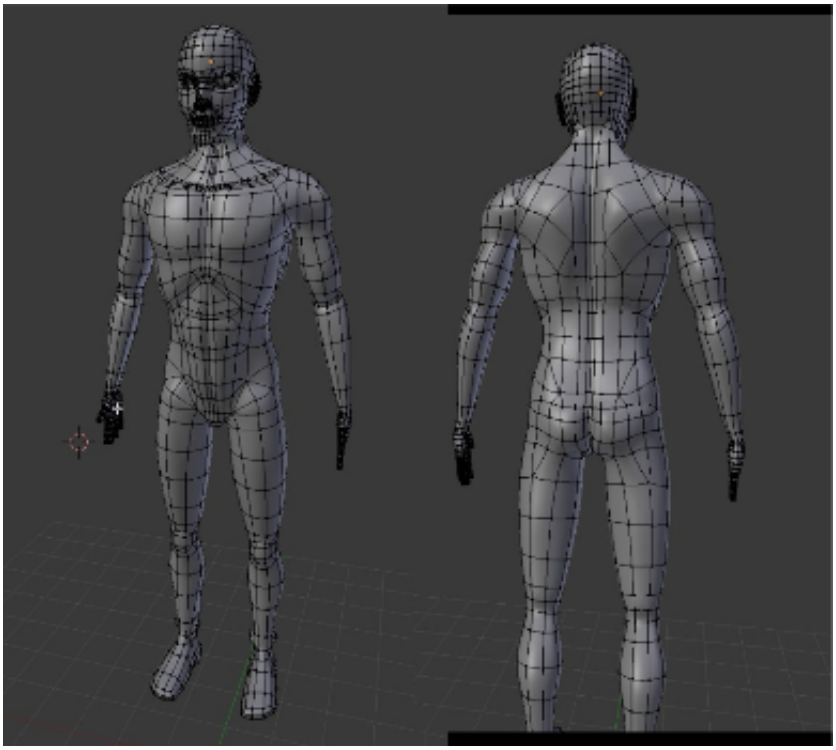


Manual collider on the left and automatic one on the right.

We can see on the right the automatic collider which is composed of triangle. Every shape can be decomposed into a sum of triangle and so that is how Unity create its collider. Funnily we can see on the left the manual made one that is almost the same but is only composed of a box and this is a lot more efficient, it is at least five times faster to calculate. This is a simple one but by doing the collider we discovered that we were bound to do them again as Unity calculated so it has the least amount of triangle possible, but somtimes it makes collider unrealistic, for example for the chair, the collider made a line between the top of the chair and the bottom so the collider looks like a triangle and it was not realistic at all.

## 4.3 Character

The process to create characters is very complex as in that we have to design each and every point of body, well it can be done but it is not as easy as it seems because this way is taken only when a developer wants certain characteristics in a character and even for that a design is to be needed so that we can complete the making of character in a symmetry. I started with this in another software called "Blender". Blender is another software which is used for making games and the process of making character in this software is very well optimized. So i started by designing the skull and it roughly rook me 3-4 hours just to complete an asymmetric model which was not suitable for the game as we required a simple humanoid character.



Then i came to know about another software - “MakeHuman”, it specialises in providing us with humanoid characters so we moved to it and it was a very helpful tool as we got what we wanted as it features every add-on which helps to make a humanoid character. It was very amazing to have such a software as i knew that it is very hard to create a character in Blender from scratch. This software even provides the the basic structure to the body which are very important for the movement but it does not work with Unity so another one was to be downloaded which which would work in Unity but then i realized that Unity does not support the format in which the character is exported and then i searched online for conversion and this step was the hardest as it took a large amount of time to figure out what was wrong but we realized it cannot be done directly and it was so complex that it was to be first converted from the format of MakeHuman to format of Blender and then from the format of the Blender to the format of Unity.

But the work was not completed here as the framework which we applied in the Makehuman just acted as an add-on but it did not work when it was transferred to unity, so it required to be configured in Unity and doing it in Unity was very complex process as it provides so many options related to physical aspects of the body like:
1 : Collision - As to how the body will react to the when collided with any other object. It is the most important part of the physical aspects of the body as we have walls , tables , chairs and other objects. So we configured it and suppose in the game you are in Computer Lab so when you move through the rows you can actually see the chairs falling.
2 : Constant forces - In this Section we can control the forces of Torque and their effects and also other relative forces.
For applying all the physics related work to the body we have Unity's built-in "Physics engine" which provide components that handle the physical simulation for you. With just a few parameter settings, we can create objects that behave passively in a realistic way (ie, they will be moved by collisions and falls but will not start moving by themselves). By controlling the physics from scripts, we can give an object the dynamics of a vehicle, a machine, or even a piece of fabric.

## 4.4 Interface

We were two member of the group working on the interface, Raphaël and Augustin.

Raphaël : I started by watching a lot of tutorials on how to create the menus, downloading the assets, creating panels... It wasn't easy to begin because I didn't know at all how Unity worked but finally I did it and created a Main Menu, from which you can go to the Single Player, Multi Player and the options, as well as quit the game.


The main menu


The option menu


The pause menu

I've also created the option menu, the pause menu you can access in-game clicking on "escape", it allows you to exit the game or to go in the options.

It was complex to start on a software you know nothing about and I had to recreate many times from nothing what I had done because of silly mistakes. But with the help of my colleagues and of long hours spent on internet searching for solutions, we have now a finished Menu connected with all the different scenes and allowing us to continue to progress in the creation of the game.

Augustin :

I made the design of the inventory (Panels, Icon..) and I did scripts that we can take an object (as long as it is interactable, it doesn't work with every object), and put it in the inventory. I also did when we use the object that it is remove from it and use the good way. I can speak you about the locked door: with scripts, I made a door that can't be open without a key in the inventory, but if we have a key, the door is unlocked and we can open or close it freely. I had troubles with the inventory because of the correlation between scripts and the real interface for example when we take an object, we need to see it on the inventory. So I have to do some design, create a class "Item" with some sprite image for the icon for eg and associate everything.

The inventory

## 4.5 Gameplay

In a game, what we call the gameplay is the most important of the whole game, because even if you have a beautiful map with splendid music and a good interface, if , once inside the game, you have nothing to do or you can do things but there is a lot of bug, then this is not a good game.

As this is the main part of the game it was impossible to do it alone and so we had to divide the work. We first tried to separate it into clear part that regroups similar things but we realized that we were unable to do it. Then we started to think a little more seriously about it and we realized that since our game is an escape game that is composed of many independent mini-games , then we could just separate each minigames from the others and do it alone without regrouping them into bigger sub part.
The problem that we faced this realization but we couldn't do anything about is, since the minigames are independent from each other, each time we had to learn again entirely how to do the minigames because the only things they had in common was that they were made using Unity

The first thing we did was the movement of the player who is an essential element to most of the game , then we did the basics interactions like being able to click and interact with an object to be able to , for exemple open a door, we were greatly surprised at that time because while looking at online tutorial we discovered that there was many differents methods even for something basic like clicking on an object.
As we wanted our game to be a minimum realistic, we didn't wanted for the player to be able to click on an object even if he is 10 meters away from it, as it is impossible in real life.
To resolve this we chose to use raycasting, that is to say, imagine there is a ray of fixed size that go from to camera in the direction of the middle of screen of the player( of course, this ray is invisible to the player), then, we are able to detect when this ray is colliding with an object, detect then if the

player is clicking on the object, and finally if the click of the player will start an action of any type.
Using this method the player was able to click and interact with object only when he should be able to.

After implementing the method of raycasting, we realized that we had another problem, the mouse of the player was not fixed in the middle of the screen so when he wanted to click on an object with his mouse he was clicking in the middle of the screen but not where his mouse was at. So we fixed the mouse in the middle of the screen and then we had to do some adjustment of sensibility of the mouse so that it is playable.
Augustin :

I coded the movement of the player and his camera during the game, I made some interaction between player and scripts like for example, I make teleportation of a player to access at a mini games by clicking on specific object.
I make Mini-Games with a simple purpose: to calculate followings operations and we have the possibilities of 2 choices, if we have the good answer, we earn a key that will help to open doors etc... If you have the good answer, you earn something to access at another stage like a key that unlock doors. And you will click on "I" to show the inventory where the key will be when you click on the key. And to open doors you just have to click on it with a key inside your inventory.

## 4.6 Sound

Gaurav :

Sound plays an important role in the game, it might seem as an very small or avoidable but it is not. Some research indicate that music and sound effects improve functionality. As an example male players scored almost two times as many points while enjoying with the first-person shooter game DOOM together with the noise on frightening audio, weapon fire, yells, and labored breathing compared to people playing the audio off.

People playing a fighting match with auto sounds effects independently or with auto sound effects and various types of music. Individuals playing songs which was demonstrated to become 'highly arousing drove the quickest but made the best variety of errors, like hitting obstacles or rapping over street cones.

Individuals playing games from eUnblocked.com performed better when playing with both music and sound effects. The games provide the player with abundant sensory cues which serve as warnings, hints for access points, comments for proper moves like powerful strikes on enemies, and much more. Surprisingly, our participants achieved best when playing background music playing a boombox that has been unrelated to the match.

In our game, the sound part was given to me and i had to configure so many different sounds. For Example - There was a sound for opening the gates and simultaneously there was also the sound for walking. I tried to add the sound of falling in Quiz area but i am still trying to add it.

I think that sound effects add an emotion to the game and not only this but they can make the player feel that he is in that battleground. That is the only the reason that big laptop brands like HP, MSI have moved to brands

like Harman, Bang and Olufsen - for their sound equipments because they realize the importance of the sound.

With sound to the different part of the games I have also added the music to the background which is very melodious and it gives the gives the feeling of being stuck in a room , because i wanted the sound to match the theme of our game as it will make the player feel the game and as per the research there are chances that he might succeed at the game.

## 4.7 Network

I did the multiplayer Mode with the network implementation. At this point, Players can connect each others either on two different network or in the same one (local), but they need to have the same build of the game (the same executable). So, to play with a friend, they need both to go on the multiplayer Mode, the first one has to create a game with a name, he will be the server and the client at the same time. After this, the second one will put the name of his friend's game and will join him. They will spawn at two different point, defined within the code. I also did the multiplayers scene by taking the prefab of the player, the map, all the network settings and did the lobby (when we wait to create or join a game).

It was a new thing to me and there are some part pretty difficult. Mainly the fact that characters need to be control individually. So I had to create a new script with everything that the player can and cannot control like the movement, the camera of the other player. I needed some times to adapt myself with different camera also and all the network settings. In spite of this, I had understood rather quickly the scripts which was used to the movement of the player and the camera.

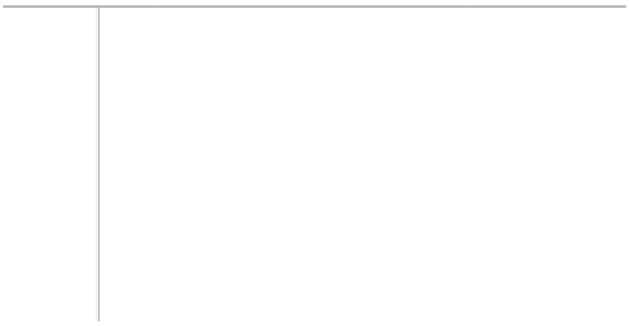
I had some problems with the multiplayer mode, especially with the player and the script. They work very well in Solo mode because the player is already here and he is unique, in contrast of the multiplayer where the configuration of player isn't the same: The player 1 spawn to one place and it is at this time that we have to put in scripts.

With all the new things we put, the online mode didn't work as it should. For example, in the game, we implement the teleportation of a player by clicking on specific object but when they are 2 players, only the first one can click and get teleported to the good position, with the other one, nothing happens. Another problem was with the doors, one player can open one

door, but it is still locked for the other one. The graphism of the inventory was in superposition with the matchmaking menu and with the escape menu. There is some problem like this that I tried to handle with and makes the multiplayer mode work.

## 4.8 Website

The Website was very innovative part as it is created purely by coding, when I searched for the ways of creating a website i found several already made layouts but the core motive of the project was to learn something new and then i went on by learning how to make a website and it was very enriching experience as i started with very basic HTML, and while learning i came to know about bootstrap and it helped a lot as it uses JavaScript and it helped me to provide animations to my website.



In Website I used Frames as i found it to be Easily customizable and and it allows us to access several parts of a particular webpage without modifying others and it was really helpful as it provided me the opportunity to put the navigations buttons on the left and display their results on the Main Screen. In our website we have provided a progress page which describes the prediction and the and the amount of work actually done till date.

We also have an “About” Page which describes the the naming and origin of our group and description of the members, in order for the consumers to give feedback we also have a “Contact” page which Epita-Email-Address of all the members so we can address the problems after the game is released. In the website we also feature a “References” Page which provides the download

link to our Book of Specifications, Project Report from different Presentations and most importantly our “Game” .


About the updation - we are constantly trying to upgrade our website and it would be updated every time we modify something. And it is even possible that if I continue exploring in this Domain then there are chances that this website would still be updated.

And we are trying our level best to have some more animations incorporated in this website but as i explained before even if this website is not as beautiful as it should be, it is purely coded by us , we have not copied any layout or took help of any Website Designers(online) and by making this website we also completed our main aim which was to learn something new which will help us in our future and we have gained this skill very well and we are constantly trying to develop it. It will further help us to put this knowledge in use wherever we want and it can be very useful for us.

# 5 Personal experience

## 5.1 Raphaël

When the beginning of the project was approaching, I was a little bit anxious, because I didn't know with who I would be and neither on what project we would work. It looked like so much pressure and even though I've already been in a situation like this last year because of a project we were doing in informatique with some friends, I didn't know if it were going to be as fluid. And in fact, it was.

I was in charge of the scenario and the map, it looked like a lot of work because even if I liked to create stories and did some Escape Game in real life, an escape game storyline is created by talented mathematician, not by 1st year student, so it seems like a lot, and adding to that the creation of the map which required to learn how to deal with a new software, Blender. But thanks to the modification of the tasks divisions, the map was no more my responsibility, I've been, since that, in charge of the whole scenario, not only the single player one, which represented a lot of responsibility, and of the interface.

For the interface, I had to understand how Unity worked, it wasn't easy and I spend a lot of hours on tutorial just to understand how to make the menu and connect the scenes between theme. It was a very rigorous task. For the scenario, it was a research work, I didn't wanted the scenario to be a repetition of equation that looked the same, so I had to find different type of enigma and riddles to entertain players and also that could be done by my team in the limited time that we had. I went over many website to see how to create an escape game from nothing and it was a difficult task but I like to think that I did something nice and that a player would enjoy to play.

This project taught me that a project leader and a calendar means nothing if there is no communication, at the beginning, we had a lot of problems because we didn't talk to much and we started working on the project really late so eventually we arrived at the first presentation really anxious on what Mr Ternier would say because we weren't very confident. This showed me that we had to communicate really frequently and we had to be a team if we wanted this project to go somewhere.

This has been a very interesting experiment, we learned a lot about each others and about the creation of video game in general, with this project, I strengthened my ability to work in group and to be efficient when I have to lead a team in a difficult journey as it is the creation of a game.

## 5.2 Augustin

The Computer Science, in its entirety, interest me since I was 12 years old although my parents don't work at all in this sector. I tried to learn this by myself with all the resources I can have like Internet mostly, but I didn't really know where to start, my goal wasn't clear, so I learned a lot of different things. I was looking at first how to create a website. I read some articles, watched videos on Youtube and I finally bought an online course on Udemy "How to create your first website".

It explained a lot of things, from the real basis of HTML to things more advanced like PHP, MySQL, jQuery and others. It offers also an alternative of website with WordPress. It ends with a great project of a Website and an online CV: I liked this.

Then, I was wondering how everything about Informatique works: how people can communicate each other, how the computer transform a signal onto what we have on the screen... and after that I started to interest myself with the Ethical Hacking because I read that there are a lot of problems with

malicious people who try to take information to their personal interest (like money mostly). I like computer security because it is always a challenge to find new vulnerabilities.

And before coming to EPITA, I bought an online course on Linux and discover that it is very different than Windows or IOS. There is more control on your computer, you know what you are doing. Even if it takes a lot of times to grasp. And this initiative helped me during programming courses with the school.

So, I am very curious in generally, especially on the Computer Science, and I enjoy participate to project, alone or with other people and this project is very interesting for me because I didn't know how to code in C and I never create a video games before. I learned a lot of things fast by creating something new without any real help from a mentor. We must handle some difficulties and problems that can happen at the wrong moment, I like this feeling of pression, it enables me to do things faster than in a normal situation. The trust in your partner is a key to success I think, and based on it, we all have different responsibilities that we must take care and makes things happened.

## 5.3 Antoine

At the beginning of the project, i was a little scared because I had to used some software like Unity and Blender that I never used before. It was also because I have a very bad memory of the project I did before this one, where everybody was working alone on their part and only when they wanted, such that we were preventing each other from working. There was also no project leader and no organization so the 'working together' part of a project was not there. So I did not wanted this project to be like the last one.

I was in charge of creating the map and no software I knew could help me do it, so I decided to learn to use Blender. I had to watch a lot of video

on it and, now, even if I dare not say that I am very good at it, at least I am confident enough that I can created most of the things I imagine if given enough time, and this is something that makes me really happy.
I was also in charge of doing all of the objects in the map, and I found doing this was quite satisfying as after doing each one I would look at it again and think that it was me who made the model entirely, which gave me good feelings.

Then during the project I learned that even if we have a project leader and strict planning, we also need to have someone to give reminder to everyone, otherwise we risk not doing many things in time. I also found that it was important to gather at least one time per week to discuss our progress, delay and what we should do after because when we didn't there was more delay than progress and sometimes we did not work further because we did not know what to do.

Overall, I think i learned a lot of things during this project. First of all I learned more about how to work efficiently in group, as the previous group project i did were disastrous, it was the first time i really learned how to work in group. Then I also learned what problems we can encounter even when the group is working correctly, and a few solutions to those. Of course i also learned about Blender and Unity and some tips and method to apply when coding, and especially how important commentary are inside a script, as for the one where we did not put any, other than the one who made it, none of us is able to say what it is used for.

## 5.4 Gaurav

I came in this group after the First Presentation and i was already very disturbed because my experience from the first presentation was not that good as in my last group i did not get the expected response from my teammates and i clearly saw the difference in the motivation of my teammates and mine.

But as my last group was incomplete, we were reshuffled and this time i came in the group with Antoine Sole , Augustin Brites and Raphael Silverio. After coming in this group I realised that it was the good group as we had a specific time in every week which was specially kept for the project and not only this but the selection of the theme of the game was also good because earlier i worked on a FPS(First Person Shooter) game and now an escape game so i was very excited to work on this project.

But, the best part of this project was that i got to learn many things from this and these values will be with me for my whole life.

1 : Dedication - We fixed a particular day in every week to work on our project and we had our goals set so we can have a track record of our accomplishments from time to time.

2 : Teamwork - We always tried to synchronize with each other and i cannot even encounter moments when we had a fight because every time we were working , we used to help each other with the problems.

3 : Motivation - The aim for fixing a day in every week and working together was to motivate each other to work hard , to do their best , and to achieve excellent results.

4 : Appreciation - This is the art which everyone should know because it helps each individual to work harder and even give other members the desire to achieve the best.

5 : Time Management - Every time we had a presentation we took some time out specifically for our project , it might seem as a very small thing but it is a virtue that most people lacks. Time Management , if done perfectly can give surprising results.

I learned so much in such a small time from all my teammates. I would cherish this project for all my life and the best part is that I got a crazy bunch of friends which will stand by me if I have any problem in my life and not just only that but they are always there to motivate to do best in my life. The zeal and the ambition we had to complete this project has given us an ability for the rest of our lives which is to complete and be the best

at everything we aim at. I wish luck to all my teammates and wish that they might have also got the same values which i got and i wish they achieve everything in their life for which they dream of.

# 6 Conclusion

To conclude, this project has been a rewarding experience for all members of this group. We faced a lot or problems, in the organization as well as in the realization of the project, and we resolved them all, even though it was not always done peacefully, we managed to go through it. During this process we grew a lot as we saw a lot of error to not do latter on, and also which solving method will bring the best out of everyone.
Some of this problems have been due to a lack of communication and we all realized the significance of this one during a group project, and also that the main difference between a project alone and in group lie in the communication.

Even thought the finished product is not exactly what we first imagined, and is not as complete as what we initially wanted, we are still pretty satisfied as at the start it was unimaginable for us that we would be able to do even half of what we have accomplished.