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# DESIGN DIALOGUES

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## Assignment 2

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## 1. Introduction

*“The Lions’ gate is open and Max the lion is waiting for you to join him for his new adventure!”*

Let’s take a few steps back...

“Lions’ gate” project based on Merchiston Campus of Napier University of Edinburgh gave me the idea for a further development that could be implemented in the campus’s gardens. The intent was to change the way universities are usually seen: a place that is dedicated to students only. I was looking for a way to change this. A university has to be a place where everybody can feel welcome with an eye of regard to children who will probably become future students.

The idea is to build an app/game designed entirely with kids in mind. The app will be advertised with banners installed all around the garden inviting kids to follow the mascot “Max” the lion for an adventure by downloading the app on their phone; the banner will have the shape of a lion and will be kids sized with an “open” face where kids can put theirs and ask parents or a student passing by to take a picture of them while they imitate the lion! The banner will also include the app name and the instructions on how to find it on the app stores; also, a QR code will be included, in order to instantly redirect them to the download page.

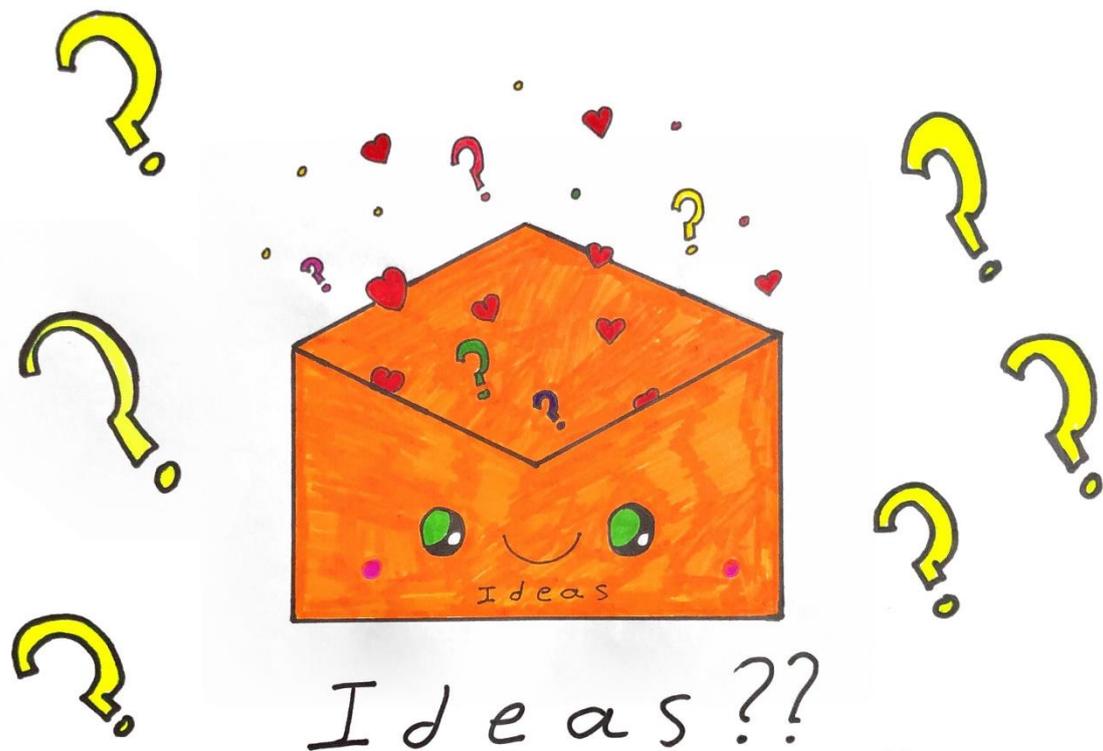
The “Max the lion” app is a sort of virtual playground where kids can interact with the surroundings through the use of their smartphone. This will be achieved through the use of AR technologies. It is an interactive game where kids will follow the mascot “Max” that will take them around the garden giving them tasks to complete. When the app will be loaded, they will be greeted by Max that will ask them to follow him in order to complete the first quest, they will be asked to point their camera at an item in the garden and then the first quest will appear. Once the task is completed Max will hide somewhere else in the garden and will then ask, when they will reach him, to complete another task. The activities will be random and will include quizzes asking them things like: “guess the name of this flower”, “where does this tree come from” etc. Drawing activities will also be included asking the kids to draw on the screen some items found in the garden.

The app’s main purpose is to encourage children to be friendlier with the environment and learn about the various items that surround them. This information will be presented to them in a friendly and easy way: the learning will be masked behind mini games and activities. For instance, a kid follows “Max” that will ask him/her to guess “which is the name of this plant?”; four options will be given and for every wrong attempt an explanation will be provided leading them to the correct answer (e.g. if the correct answer is “roses” and the kid selects “sunflowers”, the lion will say: “Not quite right! Sunflowers are yellow!”).

## 2. Design approach

The design approach used in this project was based on the feedback received from potential users. The design was user-centred which helped me to understand the needs of the users before the realization of the actual project. The aim of the user-centred design process was to ensure that the design of the project remained focused upon who will use it, in what context and with what aim. The philosophy behind this design approach proposes that the service should adapt to the user and not the other way around.

### 3. Understanding



Research has been done starting from the web trying to find ideas and concepts of interactive gardens, interactive systems and games trying to expand my knowledge and make my app more interesting and useful. My research was focused on similar apps such as “PlantSnap, Plant Identification” which is an app that lets you retrieve information about plants by simply taking a picture of them. My aim was to make a similar app which allows children to learn about the environment without giving them too complex information. Also, the app had to be simple and engaging for them and for this reason it had to be as a sort of videogame making it more interesting and funnier.

Starting by observing kids and their digital habits, I found out that they start using a smartphone from a very young age. They usually do not own a phone but they start by using their parents’ ones to play games, watch cartoons on YouTube or use them to draw. So, having the idea in my mind for a kid-oriented game I wanted a clear view of the people who will be involved in the app (parents and kids), the activities that are the focus of the design (quiz, drawing etc.), the contexts within which the activities may take place (garden and terrace) and the technologies used to accomplish this (AR): PACT Analysis.

The main focus of the understanding process was on what the kids do or what they might want to do, how and why they do things and what kind of problems they have with the current use of other similar apps. For my research I conducted a semi-structured interview with three different children of ages six, nine and twelve and an interview with a group of six parents. Also, I organised a brainstorming session with seven people of different ages and different backgrounds.

### 3.1. Methods

#### 3.1.1. Interview with kids

Before starting the interview, a brief explanation of the project has been given. I started by asking general questions in order to understand the background of the users, their likes/dislikes and their habits. I continued by asking more specific questions about their relationship with the technology and in the end, I asked some specific questions about the app in order to get some useful insights. With the permission of the parents, I recorded all the interviews and I also kept notes of their answers. I prepared a set of twenty-five questions and below there are some of them with the answers:

##### ***What do you usually do in the afternoon when you come back from school?***

“I usually finish my homework and after I am free to play with my brother or watch TV.”

*Anna, 6 years old*

“As soon as I arrive home, I start playing PlayStation with my mates online! Mum does not like it and always tells me to finish my homework first and do not spend too much time playing videogames.”

*Yuri, 9 years old*

“Well! Actually, I arrive home too late. Usually after school I either have my Karate lessons or my guitar school. The other days I hang out with my friends!”

*Mario, 12 years old*

##### ***Do you have any hobbies?***

“Yes! I like dancing and ballet. We have an after-school class for little dancers but dad promised me that next year I will go to a real dance school!”

*Anna, 6 years old*

“No, I am too bored with everything! I only like playing videogames!”

*Yuri, 9 years old*

“As I already told you, I like playing guitar! I also like playing videogames!”

*Mario, 12 years old*

##### ***In your free time would you rather do indoor or outdoor activities?***

“I prefer outdoor activities because I can run and play with my brother.”

*Anna, 6 years old*

“I do not like going out so much. I prefer to play at home!”

*Yuri, 9 years old*

“I prefer outdoor activities. I really like when I go for football with my friends in the park!”

*Mario, 12 years old*

***Do you own a smartphone or do you use one?***

“No, I don’t. I want one but my dad says that I am very young for this. I use his phone and I watch SpongeBob on YouTube!”

*Anna, 6 years old*

“I use my parents’ phone and also my sister’s.”

*Yuri, 9 years old*

“Yes, I do! It was my birthday present!”

*Mario, 12 years old*

***How do you usually spend time on the smartphone?***

“I watch cartoons and draw.”

*Anna, 6 years old*

“I usually watch videos of famous gamers on YouTube.”

*Yuri, 9 years old*

“I play games, I chat with my friends and I listen to music.”

*Mario, 12 years old*

***What kind of games do you play on your smartphone?***

“I only play Fruit Ninja.”

*Anna, 6 years old*

“I play Minecraft, The Sims, Temple Run and Need For Speed.”

*Yuri, 9 years old*

“My favourite game is Pokémon Go.”

*Mario, 12 years old*

***How many hours per day do you use your smartphone?***

“I do not use it so much because my parents do not allow me.”

*Anna, 6 years old*

“I use it more or less one or two hours per day. I usually spend more time with the PlayStation”

*Yuri, 9 years old*

“A lot! I use it during the breaks at school, in the afternoon and before I sleep.”

*Mario, 12 years old*

***Which are your top three favourite apps?***

“YouTube! Also, the app for drawing and the game Fruit Ninja.”

*Anna, 6 years old*

“I like Minecraft, YouTube and the Camera to take selfies.”

*Yuri, 9 years old*

"I like Facebook, iMessage and Pro Guitar Tuner."

*Mario, 12 years old*

**What is your opinion about this interactive game?**

"I really like it! Max is very cute. I like the thing that I can draw what I see in the garden."

*Anna, 6 years old*

"It does not sound bad but it is not the kind of games I usually play. I would like to try it in particular to take a selfie with Max."

*Yuri, 9 years old*

"It sounds too simple for me. I think I would get bored very easily."

*Mario, 12 years old*

**What would you change about the app?**

"I would prefer if Max was a girl lion."

*Anna, 6 years old*

"I would prefer a more competitive game where you can win something at the end like a trophy. Also, it would be nice if you had enemies to destroy!"

*Yuri, 9 years old*

"I like quizzes but there should be more difficult questions. It would be funnier if we had to find Max like in the 'hide and seek' game instead of just following him."

*Mario, 12 years old*

**Could you see yourself or your friends using this app?**

"Yes, I can't wait to try it!"

*Anna, 6 years old*

"Yes, because maybe is a good way to explore the garden."

*Yuri, 9 years old*

"I would try it but I think is going to be a more interesting game for my little brother and for younger kids."

*Mario, 12 years old*



### 3.1.2. Interview with parents (focus group)

I did a group interview with the parents in order to understand their needs and their opinion about the app. Their feedback will be used to further shape the project. They have been asked about their habits and their family routine. They have been interviewed as a group and not individually in order to stimulate ideas and discussion. The main purpose was to interact with each other. With their permission, I used a camera to record the whole session with the intent of having a further analysis of their reactions during the interview. I prepared a set of thirty questions and below is an extract of the interview:

#### ***Where do you usually go with your families in your free time?***

“We usually go to the cinema. Kids love it! Sometimes it gets boring for us parents as we are most of the times watching cartoons. Me and my wife love nature and we really enjoy going for a stroll in the park but kids get bored very easily.”

“We love going out with our dog. Kids really enjoy open spaces so we usually go to Portobello or Arthur’s seat. We really love the beauty of nature!”

#### ***Being a parent, do you find enough time for yourself?***

“Actually no. My day is very busy taking care of the children, my husband and the house. I love spending time with them but I really feel that I want time for myself to do things that I like.”

“Even if we are a couple of professionals, we usually find time for ourselves. My husband is very supportive and he stays with the children some days so I can attend to my dancing classes. Other days I stay with the children and he goes out with friends. We have also help from our parents and they usually keep the children during the weekend so we can spend time as a normal couple.”

#### ***What is your opinion about the app?***

“It sounds great! We love spending time together as a family. Me and my wife can relax in the gardens while the kids are playing with the app.”

“I have found the Lions’ Gate project on the internet and we are already planning to visit the Campus with my husband. It sounds nice that we can also bring the kids with us and that they will have something to play with while we are exploring the gardens ourselves.”

“My kid loves learning about animals and plants. I think it would be a funny way to explore the garden and learn about the environment.”

#### ***Considering that some kids do not own a smartphone, do you think this could be an issue?***

“I think this could be a problem. My child does not have a smartphone and neither do I. I still use an old phone. I believe you should provide tablets so that your app would be accessible to everyone.”

“My children do not own a smartphone either. They are too young for that! Sometimes they use mine but I cannot give it to them all the time because I need it for my job. I think the idea of tablets sounds nice.”

“I totally agree with the other parents. My kid owns a tablet so I think it would be good if you make the app compatible with tablets.”

***Do you think the app will encourage your children to explore the garden?***

“I think that the implementation of Augmented Reality will make the experience more interesting and kids will love to explore the garden. My son spends a lot of time playing AR Dragon and I think that he would really enjoy a similar app. Also, the idea of following the lion sounds amazing! The kids finally will not just play sedentary videogames; their health will benefit from it and they can also meet more children and socialize.”

***Do you find the app educational?***

“Of course! I think this is the future of learning: kids are not so keen on reading books nowadays; I believe this is a very good way of learning while playing.”

“Absolutely! Guessing for example the names or the families of the plants is a funny way to learn for a kid.”

***Do you think it is easy enough for kids to use?***

“I think that in this state the app would be too easy for kids aged ten or more, maybe they will still try it but they will probably get bored after a while. Probably the difficulty should be tailored to the age of the child.”

“As the other parents said it depends of the age of the kid. My son is six years old and it sounds fine for him but for my twelve years old daughter will definitely be quite simple.”

***What else would you like to find in the app?***

“As we have just arrived in Edinburgh my six years old daughter does not speak English so well. I think you should support more languages.”

“I think the app should be richer in content, for example you could take advantage of AR technologies to provide more animations from the environment: you could add birds, insects and wild animals.”

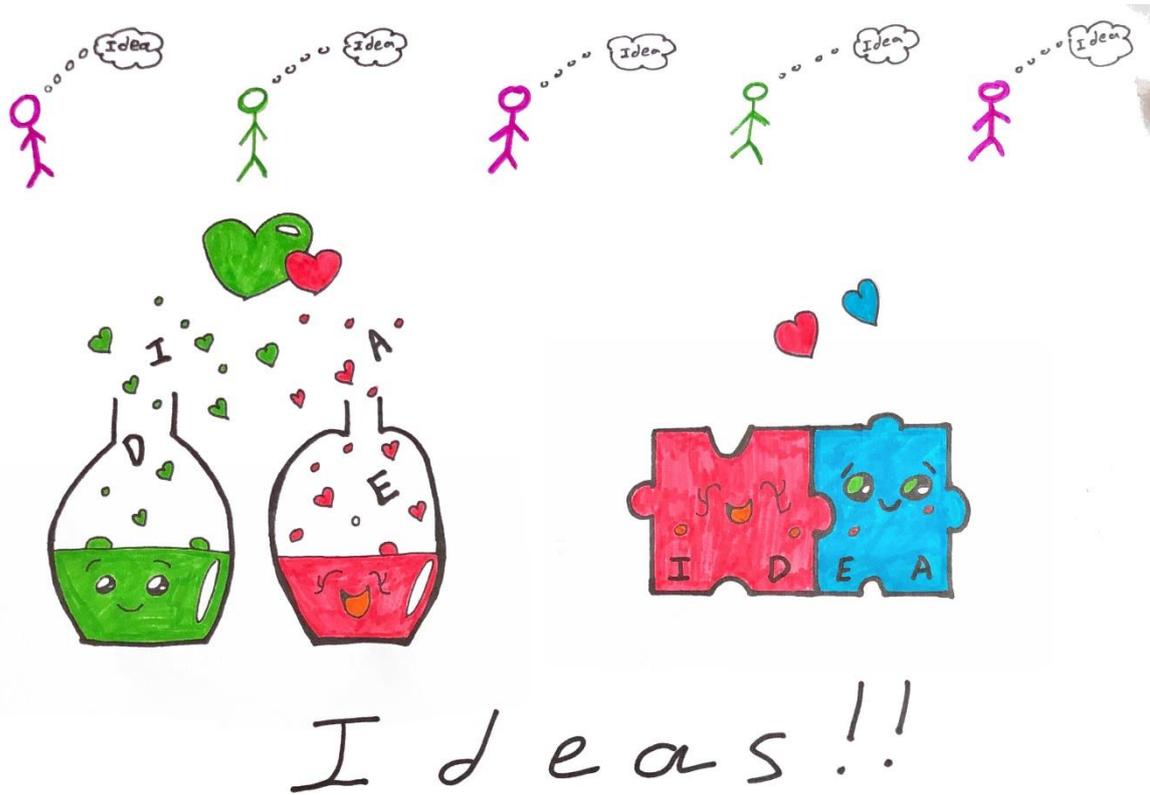
“I agree with the previous statement, you could also further enrich the app by adding sound effects usually found in nature.”







- ✚ Sound effects found in nature were suggested to be added in the app. Also, dialogues can be added (e.g. Max actually talking to kids with his voice).



## 4. Envisionment

In order to better visualize the whole project, different methods have been used. These methods were the first step for the project to become a reality and inspired me and helped me to implement the ideas previously gathered into the app.

### 4.1. Storyboard



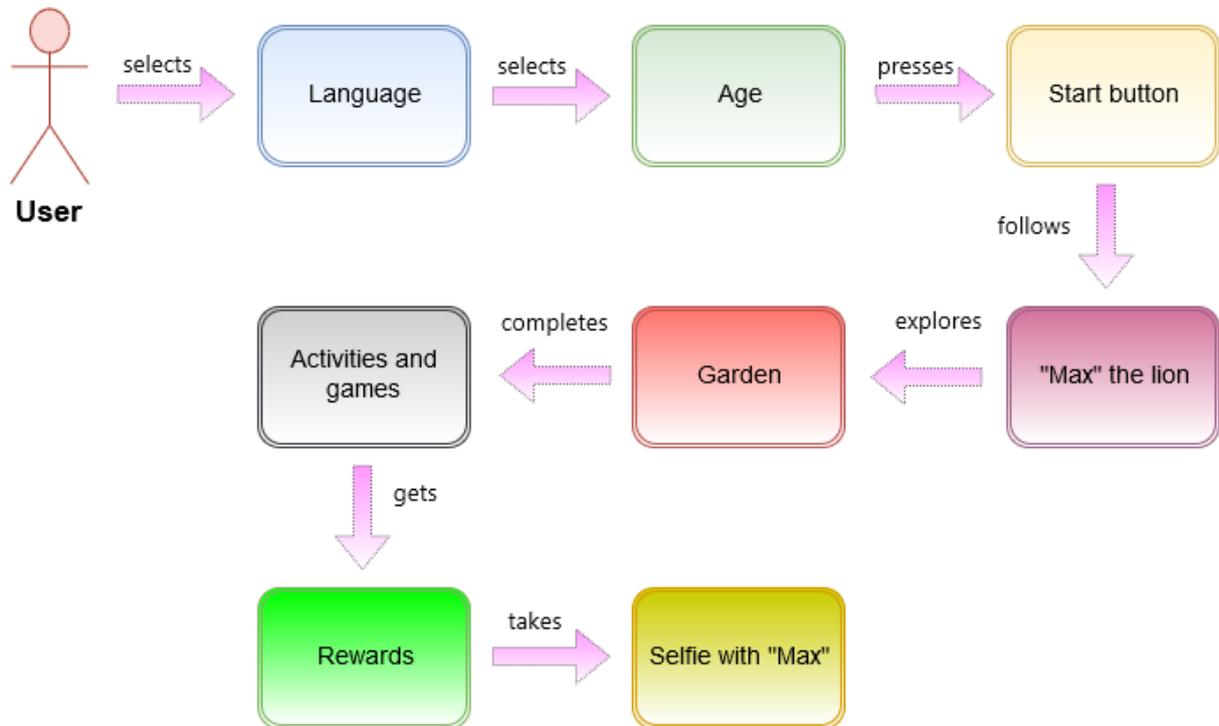
A hand-drawn sketch has been made as it was a very fast and economic way to visualize the entire project. I used a traditional storyboard consisting of sketches and text to introduce the main idea of the project. The storyboard consists of seven scenes.

#### 4.2. Mood board



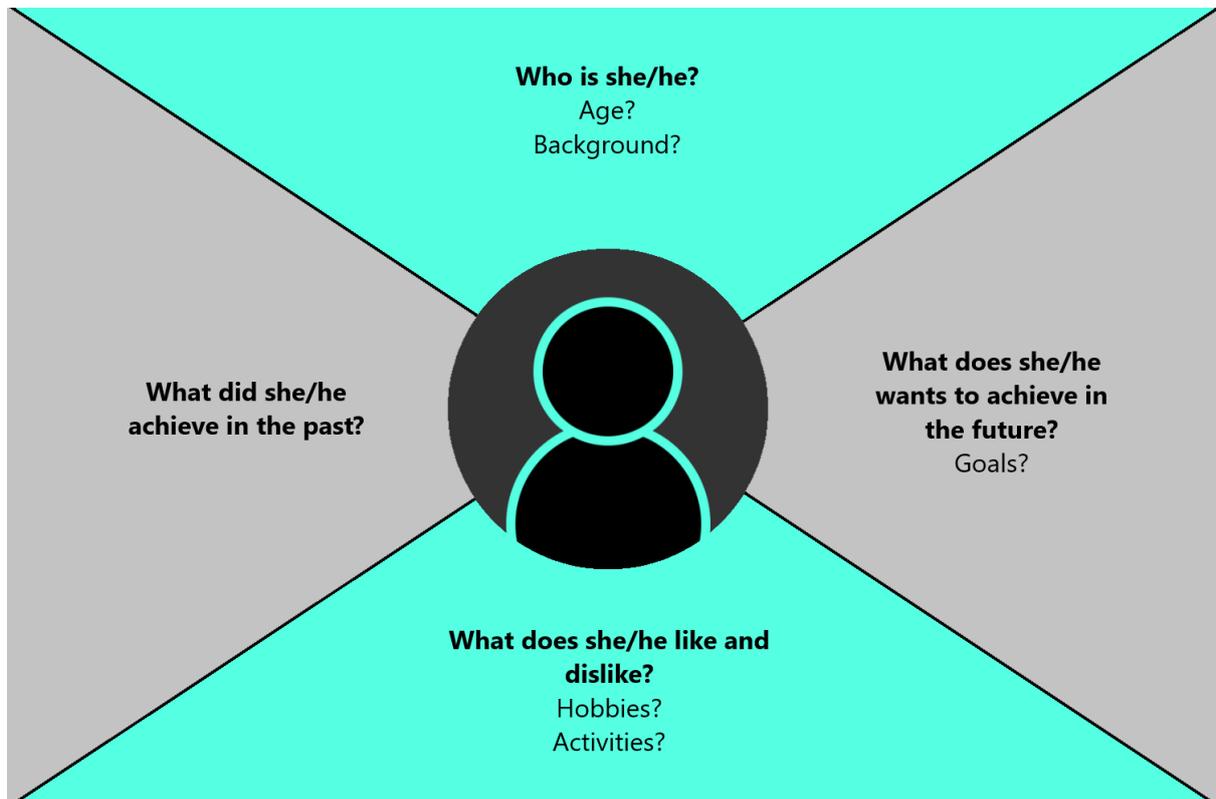
With the help of three people (one kid, one parent and one graphic design student), I created a mood board. I asked them to find some pictures representing for them the following topics: jungle, plants, trees, animals, wildlife and nature. The whole procedure gave me inspiration for my design process focusing on aesthetics. The mood board helped me understand what kind of colours and images people usually associate to the proposed topics.

### 4.3. Navigation map



Focusing on the actual app and how it should work, a navigation map has been created showing exactly the mechanics of the game and the interactions involved.

### 4.4. Empathy map



An empathy map has been generated in order to focus on the key characteristics of the users. This helped me visualize my project by focusing on mapping out the different potential users who are being investigated.

## 5. Design

### 5.1. Metaphors

In this project I used metaphors through the use of icons that were representing the action that is done by tapping them. For instance, the levels of the game not yet unlocked are represented by the icon of a padlock. When giving information about a specific plant through the quiz, various icons were used such as the drop representing the water, the sun representing the heat and the snowflake representing the cold. Binoculars icon represents the main activity of the game which is "Find 'Max' the lion."

### 5.2. Conceptual Design

#### *Conceptual Scenario*

Based on the navigation map made in the envisionment phase a conceptual scenario has been generated:

- ✚ The kid downloads the game on his/her tablet or smartphone.
- ✚ Once the app is installed, he/she launches it and a page appears asking to select the language.
- ✚ After selecting the language, he/she is asked to enter the age.
- ✚ Completed the initial setup, the starting page appears showing briefly the mini games and activities included and the main character of the app "Max". Also, a button to start the game will appear.
- ✚ Once the game starts, the kid will see "Max" introducing himself and giving an explanation of the game. After, "Max" runs and hides himself and the kid has to explore the garden in order to find him.
- ✚ Once the kid finds "Max", the first mini game will start. For instance, quiz about the nearest item in the garden or draw a plant/tree.
- ✚ When the activity is completed, "Max" runs away to the next place in the garden. When the kid reaches him, another activity will start.
- ✚ The game is made of ten levels. When all the levels are completed, the kid will be able to take a selfie with "Max" in AR.
- ✚ The conceptual scenario helped me to find the problems of the prototype by analysing the way the app will be used in real life. Also, it helped me to understand better the users and their requirements and needs for an app like this.

### 5.3. Physical Design

#### *Design Language*

The application interface should be consistent and not too cluttered. As it is an app for kids, the main focus should be on simplicity, ease of use and learnability. The style is inspired by the world of cartoons in order to create a funny and friendly environment. Animations will be included through the whole app in order to make it look alive and dynamic.

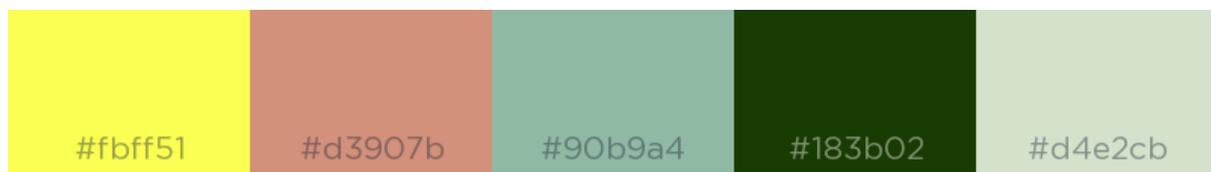
#### *Icons*

Some simple icons are used in order to grab users' attention and improve visual interest.



#### *Colours*

The app's main colours are the ones generally found in nature. Below you can see a palette representing the app's theme.



#### *Typography*

The font used is "Comic Sans MS" giving the app a playful character. "Bold" is used for the buttons in order to make them clearer and eye-catching.

## 6. Evaluation

In a very early stage, evaluation has been done based on the envisionment methods using the sketches and the navigation map previously generated in order to check the consistency of the app in the current state. Some potential users and some UX design students participated in the evaluation process.

## 6.1. Expert-based method

With the help of four UX design students, I created a persona and a concrete scenario based on the empathy map generated during the envisionment phase. Our main purpose was to find possible problems of the current prototype by imagining a potential user interacting with the app.

### Persona



### Bill

**Age:** 10 years old

**Occupation:** Student

**Location:** Lives in a ground-floor apartment in the countryside of Edinburgh

### Likes:

- ✚ Playing videogames
- ✚ Reading books
- ✚ Listening to music
- ✚ Playing basketball

### Dislikes:

- ✚ Homework
- ✚ Being told that he is too young for something
- ✚ Eating vegetables and fruits

### Background:

When he was five years old, he had a car accident. Unfortunately, this deprived him of the use of his legs. He is in a wheelchair but he does not see it as a limitation and he never stopped fighting to reach his goals.

### Achievements:

- ✚ At the age of eight, he won an important wheelchair basketball tournament with his team.
- ✚ At the age of nine, he won an award for kids' poetry in a competition among all the Scottish schools.

### Goals:

- ✚ He wants to win the Olympics with his basketball team.

## Concrete Scenario

Today Bill visited Merchiston campus with his parents and his little sister. When they arrived in the university Bill was very excited to find out that there was a game to play in the garden. His parents just bought him a new phone as a present for Christmas and he felt very happy to try his first AR game. While he was playing, he was very excited with the quizzes and he wanted to explore more the garden. At some point, in order to move to the next level, the game asked him to run and catch “Max” hiding behind the roses. Bill is a very proud kid and does not feel that he has any limitations but unfortunately he had to give up on the game as he was not able to complete it properly.

From this example I realized that the game is not accessible to everybody especially to people with disabilities. There should be an option in the settings for accessibility that allows the users to limit the mini games to activities that require less motion.

### 6.2. Participant-based method

Based on the navigation map of the envisionment stage, potential users helped me find issues that they stumbled in while using the app. Users’ feedback is very useful as they can easily spot usability issues and potential difficulties that experts can sometimes oversee. With the help of six kids, the app has been tested. Below are the results of two testing methods:

#### 6.2.1. Usability testing (Testing 1)

I asked Anna the six years old girl to use the app which was represented on a paper in order to test it. I explained her the process, the game and the reason she was there: I needed her help. I told her that I would compensate her for her help with a gift. I also explained her how long the process would take (maximum thirty minutes) and I told her to feel free to ask me for a break anytime she wanted.

I started the test by asking her general questions about her relationship with the technology:

**Q:** “How often do you go online?”

**A:** “Everyday”

**Q:** “What websites do you go through?”

**A:** “Websites for kids! Like Sesame street, PBS Kids and Disney Jr.”

**Q:** “What is your favourite website?”

**A:** “PBS Kids.”

**Q:** “Your parents allow you to go online at any time?”

**A:** “No! Only when I finish my homework and eat all my food!”

After I gave her the sketches and I explained her that in the papers was represented the game. I asked her to use the app using the pen as if it was her finger on a touchscreen. The *first page* was the “Select your language”.



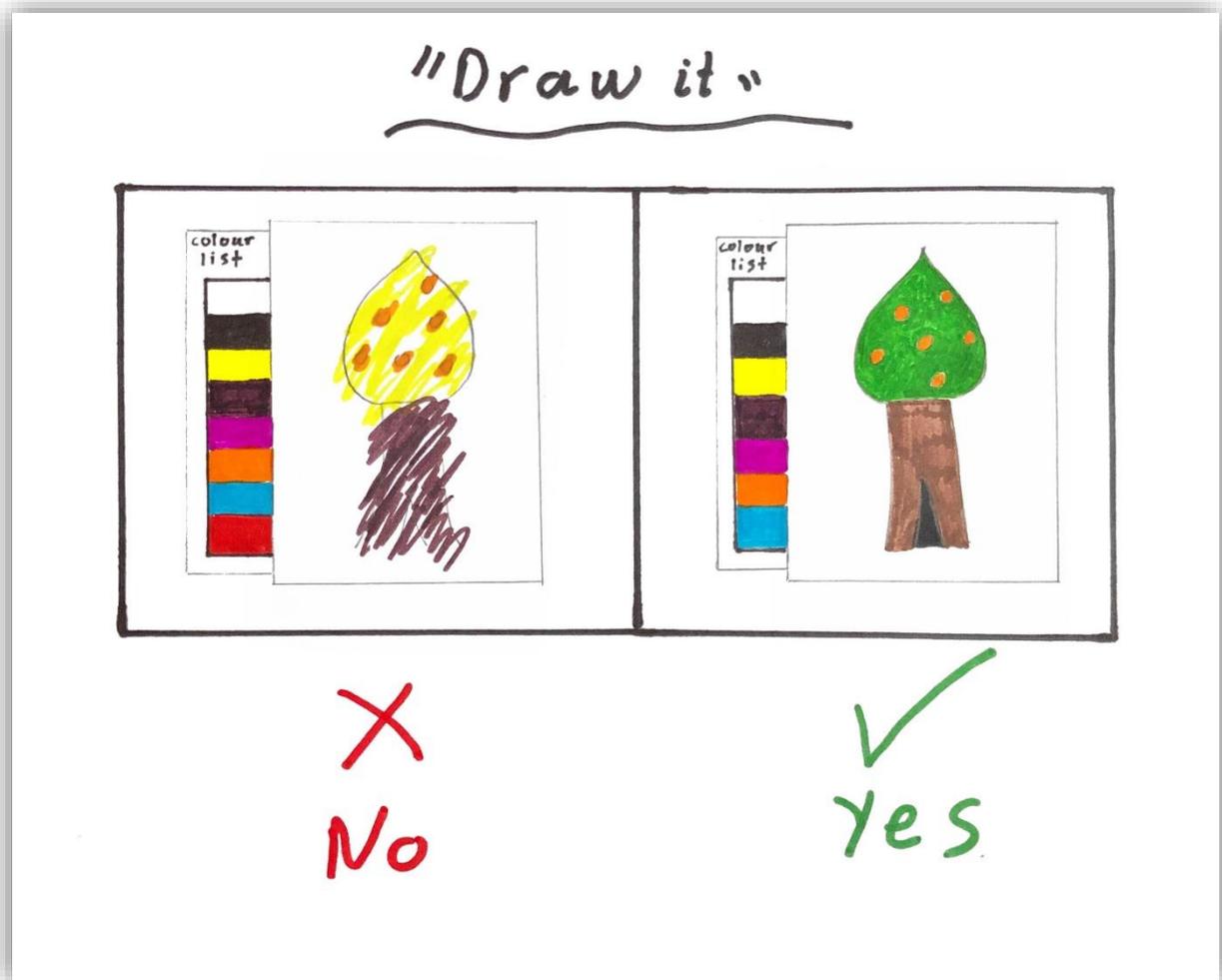
I noticed that she was struggling to select the language. She is from Greece and she just came in Edinburgh so she does not speak English yet. She is too young and she does not know the flags so neither the flag nor the English text helped her. The solution is to remove all the English text from this page and to use the flags and text written in each language.

The *second page* was the main page of the app:



I asked her first what does she think about this page and she answered that it looked amazing. I asked her then to specify the meaning of "amazing" and she answered that Max was looking cute. The final step on this page was to find out how to start the game. I noticed that it took longer than usual to find the button as it was almost hidden and as there were too many elements and colours. I realized that the interface has to be decluttered. The interface should be more minimal with less accent colours and the start button has to be more prominent, bigger and yellow.

The *last page* was a game example "Draw it":



I asked her to start playing this game and I noticed that it was well perceived. She understood soon how to pick a colour and start drawing. At this stage, the way it was conceived, the item had to be coloured by hand but I noticed that she was upset when the colour was going out of the lines. She suggested that it was better if she could just pick the colour, select the area to be coloured by tapping with her finger and then see the area filled by the chosen colour automatically.

### 6.2.2. Questionnaire (Testing 2)

I asked two children and one parent who already participated in the understanding process to complete a questionnaire in order to give me feedback for the project. Below you can see the results:

*Yuri (nine years old, student):*

	1	2	3	4	5	6	7	
Boring					✓			Exciting
Annoying					✓			Enjoyable
Difficult						✓		Easy
Unpleasant				✓				Pleasant
Demotivating						✓		Motivating
Confusing			✓					Clear
Unfriendly							✓	Friendly
Dull			✓					Creative
Non-interesting				✓				Interesting
Predictable	✓							Unpredictable
Slow					✓			Fast
Bad				✓				Good
Unattractive					✓			Attractive

*Mario (twelve years old, student):*

	1	2	3	4	5	6	7	
Boring				✓				Exciting
Annoying						✓		Enjoyable
Difficult						✓		Easy

Unpleasant			✓					Pleasant
Demotivating						✓		Motivating
Confusing					✓			Clear
Unfriendly						✓		Friendly
Dull			✓					Creative
Non-interesting						✓		Interesting
Predictable			✓					Unpredictable
Slow	✓							Fast
Bad					✓			Good
Unattractive			✓					Attractive

**Konstantina (forty years old, mother):**

	1	2	3	4	5	6	7	
Boring				✓				Exciting
Annoying							✓	Enjoyable
Difficult							✓	Easy
Unpleasant					✓			Pleasant
Demotivating				✓				Motivating
Confusing				✓				Clear
Unfriendly							✓	Friendly
Dull				✓				Creative
Non-interesting				✓				Interesting
Predictable		✓						Unpredictable

Slow					✓			Fast
Bad					✓			Good
Unattractive			✓					Attractive

The results showed that the app’s strengths were: exciting, enjoyable, easy, motivating, friendly, interesting and good. All of them agreed that the app is dull and predictable. There were mixed opinions about the app’s pleasantness, clarity, pace, attractiveness. This showed that the app is mostly perceived in a good way; some work has to be done though focusing on the app’s weaknesses. However, for more accurate results, more participants are needed to complete the questionnaire as three people are not enough for the testing phase.

## 7. Conclusion

In this coursework, I followed the “user-centred design” process in which the focus was on the users and their needs. First of all, there was an attempt to understand the context in which users may use my app. I used a mixture of *investigative* and *generative* methods and tools (surveys, interviews and brainstorming sessions) in order to understand the users’ needs which helped me create a list of requirements and problems that the users might have. Second, I tried to visualise my project through the use of different methods (storyboards, mood boards etc.) that helped me to move to the design phase where I tried to develop solutions by creating a conceptual scenario and the design language of the app. Last, I tried to test my prototype in the evaluation phase in order to check how well the design was performing and how close it was to the context of the users.

In the coursework 1, I used a scenario-based design method whilst in this coursework I used a user-centred design method. Comparing the two of them, in this coursework I focused more on the users and their needs. Their requirements and feedback gave me ideas and made me understand which were the areas to improve. Also, more participants were involved in the whole process comparing to coursework 1. More understanding methods were used comparing to coursework 1 where only users’ stories were used to give me feedback. In the coursework 1, I created a sketch of the main page of the app whilst in this coursework there was more focus on sketching using more methods (storyboards, mood boards, etc.) in the envisionment phase. In the evaluation phase, there was more focus on testing my prototype comparing to previous assignment where a concrete scenario was generated based on one of my personas. In this coursework, expert-based and participant-based methods were used in order to test the usability and the way the app was perceived by the users (usability testing and questionnaires).

In a user-centred design process, ethical issues are important and a UX designer should always have in mind that the users’ privacy should be respected. In my case, some participants asked me to remain anonymous that is why I did not record names in my research (the names seen in my coursework are fictitious). From the beginning, I have been honest with the participants as I explained them the purpose of my research and how I was going to use the results. Also, all their data have been kept safe and only for the duration of the research. Also, I tried to reduce the time needed for the sessions by preparing them in advance in order to not waste the participants’ time.

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## Drawings:

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<https://www.youtube.com/watch?v=4bcVgoC5z6M>  
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## Images:

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## Icons:

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## The mood board was generated with:

“Collage Maker Pic Grid – Scrapbook”

## The navigation map was generated with:

<https://www.draw.io/>

## The empathy map was generated with:

Windows Paint 3D

## The palette was generated with:

<https://colors.co/>

## General ideas about similar games:

<https://itunes.apple.com/us/app/plantsnap-plant-identification/id1234702272?mt=8>  
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**General ideas about the Lions' Gate project:**

<http://blogs.napier.ac.uk/thelionsgate/>

**Ideas about the context and the structure of this coursework:**

<https://www.callumegan.co.uk/wp-content/uploads/2016/11/secret-garden.pdf>

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**General ideas about what children like and dislike:**

<https://www.quora.com/What-do-kids-hate-the-most-and-why>

**Articles about games:**

[https://www.gamedesigning.org/why-video-games-are-good/?fbclid=IwAR1seK9jViXpi4PO2fXGwWE5WQkPgC\\_tBxHto8mv9Kupl8v5z3EF5wzVGxU](https://www.gamedesigning.org/why-video-games-are-good/?fbclid=IwAR1seK9jViXpi4PO2fXGwWE5WQkPgC_tBxHto8mv9Kupl8v5z3EF5wzVGxU)

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<https://www.interaction-design.org/literature/topics/user-centered-design>

<https://www.experienceux.co.uk/fags/what-is-user-centred-design>

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**Articles and video about testing and evaluation:**

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<https://theblog.adobe.com/the-top-5-user-testing-methods/>

**All the usability testing (Testing 1) was based on the following video:**

<https://www.youtube.com/watch?v=9wQkLthhHKA>

**Articles about scenario-based method and ethical issues:**

<https://medium.com/dev-channel/scenario-based-design-a4aded4bab4d>

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