

# Feel - O



**Gamified Emotional Learning for  
Children with ASD**

# Introduction

**Autism Spectrum Disorder (ASD) affects **Communication**, **Emotion Recognition**, and **Social Interaction**.**

Struggle to Identify  
interpret emotions.

Traditional methods fail  
to keep them engaged

**Early Interactive Support is KEY for  
Developing Emotional and Social Skills.**





# Problem Statement

Children with **ASD** often **struggle** with  
**Recognizing** and Interpreting **Emotions**



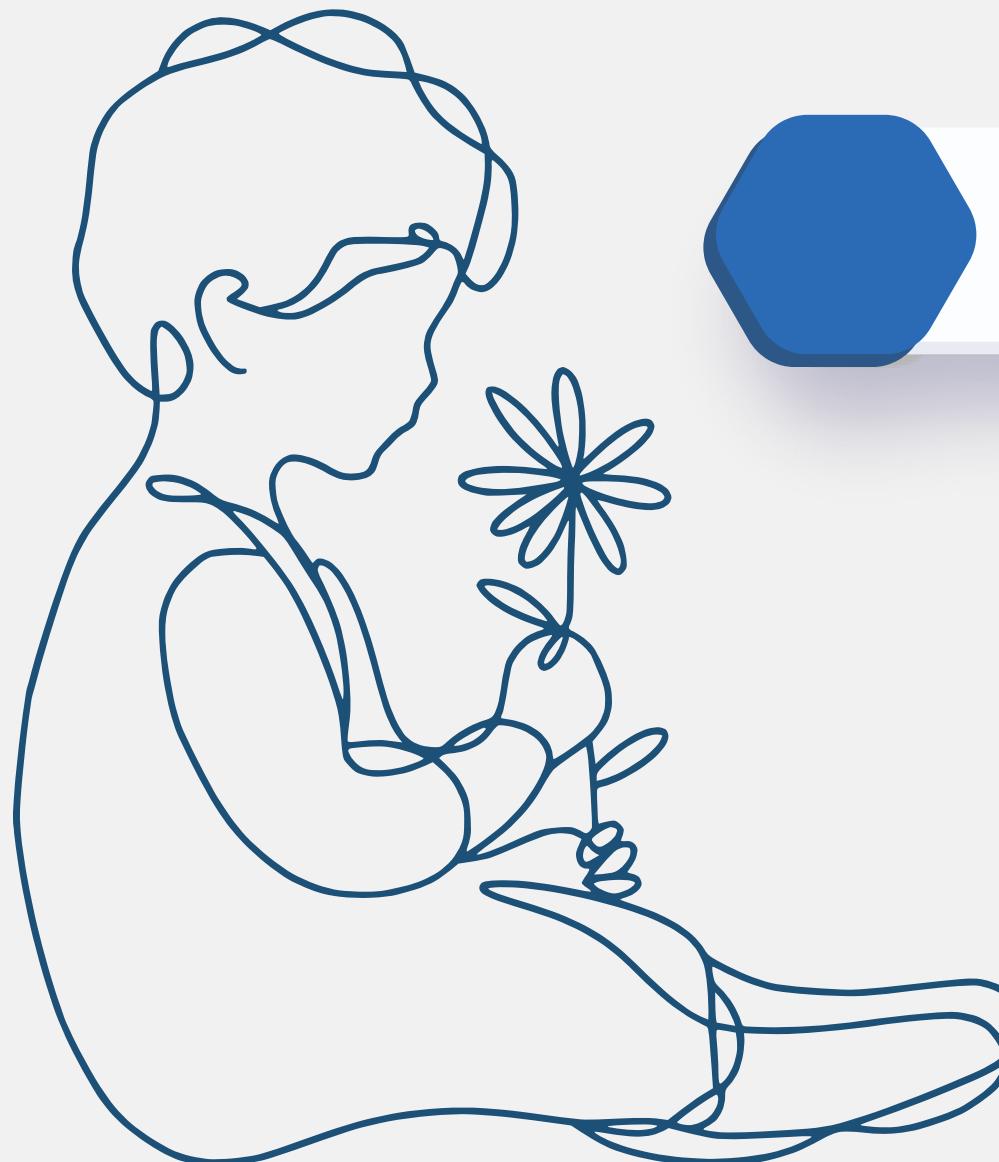
**Traditional therapy?**  
repetitive and non-interactive



**Engaging &  
Motivating Approach**

**Improve Social Skills and Emotional Development Effectively.**

# Why Feel-o is Important?



**Makes therapy more interactive and motivating than traditional methods**



**Builds confidence and social-emotional skills through safe practice.**



**Supports early emotional development, reducing long-term challenges.**

# Existing Solutions



# The Transporters

https://resources.autismcentreforexcellence.org/courses/transportersuk/lectures/S055435

The Transporters (UK) | Teaching autistic children about emotions

The Transporters – All Episodes

- The Transporters' Happy Day (5:08)
- Sally's Sad Day (5:09)
- Nigel's Slow Day (5:09)
- Charlie Saves the Day (5:12)
- A Very Exciting Day (5:08)
- Jennie's Smelly Adventure (5:08)
- Barney's Special Day (5:07)
- William's Scrapyard Nightmare (5:09)
- Charlie's Missed School Run (5:06)
- Oliver the Kind Funicular (5:08)

Complete and continue >



-  Progress Tracking
-  Interactivity
-  Realistic scenario
-  Expression Teaching
-  Motivation

# MindReading

The screenshot shows the homepage of the MindReading website. At the top, there's a navigation bar with links for ACE HOME, RESOURCES, CONTACT, LOGIN, and SIGN UP. Below the navigation is a large banner featuring three young people labeled 'afraid', 'angry', and 'excited'. A red button in the center of the banner says 'Purchase Product'. To the right of the banner is a sidebar with a list of emotions categorized by valence:

- 1 - Bullying**
  - Bullying (0:38)
  - Difficult (0:30)
  - Hateful (0:29)
  - Unfriendly (0:33)
  - Meen (0:20)
  - Unkind (0:31)
  - Teasing (0:30)
- 2 - Sad**
  - Sad (0:20)
  - Lonely (0:20)
  - Useless (0:30)
  - Tired (0:32)
  - Tearful (0:31)
  - Mourning (0:27)
- 3 - Happy**
  - Lucky (0:28)
  - Overjoyed (0:27)
  - Merry (0:27)
  - Comfortable (0:28)
  - Glad (0:26)
  - Happy (0:30)
  - Joking (0:27)
  - Possessive (0:28)

Below the sidebar, there's a section titled 'Emotion Information' with a definition: 'To make someone feel threatened or fearful by your intimidating manner'. It also includes a 'Simple definition' and a note about 'Valence: Negative'. Further down, it says 'Below are the individual videos and audios. These are viewable offline within the companion Teachable app.' There are two small video thumbnail images of children.



Interactivity



Motivation

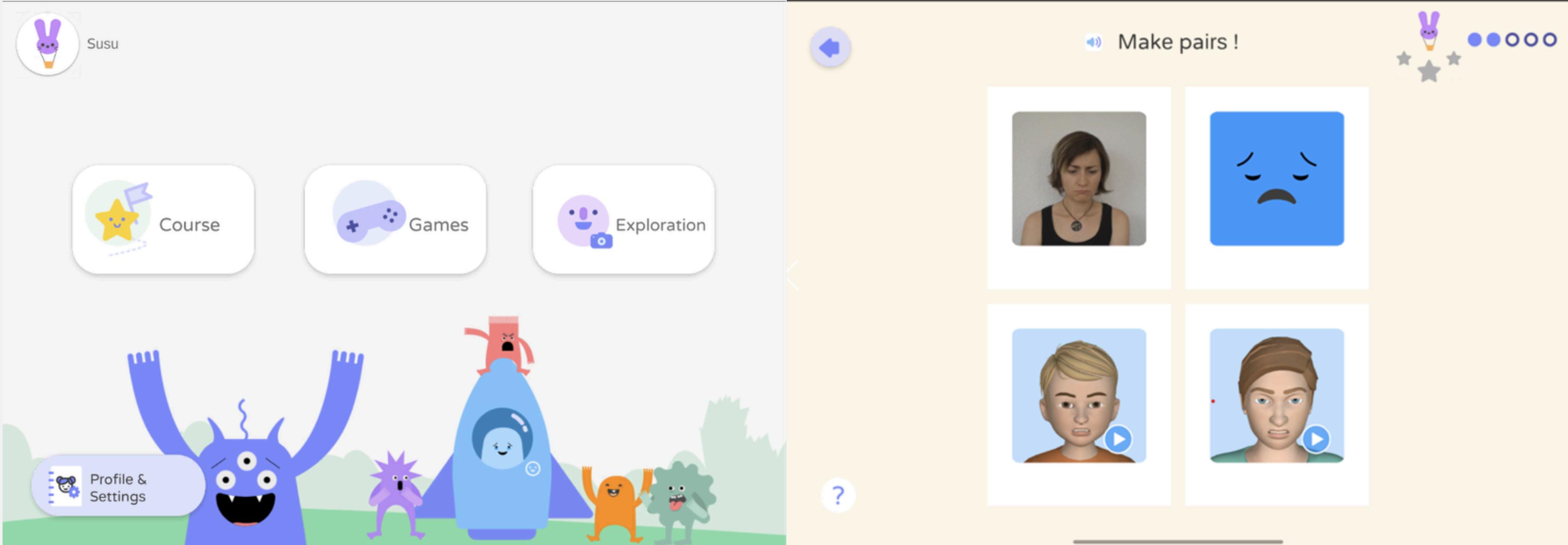


Independent use



Progress Tracking

# EmoFace



Interactivity



Realistic characters



Independent use



Progress Tracking

# AutismEmotions



I'm playing a game.

Model Me Kids®

This section shows a young boy in a red shirt playing with a toy car on a track. The background is a light green color with a house icon in the top left and a play button icon in the top right. Below the image is the text "I'm playing a game." and the Model Me Kids logo.

## Choose an Emotion



Happy

Sad

Proud

Calm

Model Me Kids®

This section is titled "Choose an Emotion". It features four emotion icons: Happy (smiling face), Sad (frowny face), Proud (face with arms raised), and Calm (neutral face). The background is a light green color with a large yellow outline of a person. The Model Me Kids logo is at the bottom left.



Interactivity



Motivation



Progression



Progress Tracking

# Our Solution



Fully interactive



Motivation driven



Progress Tracking



Multimodal inputs



Gamified learning



Realistic characters



Independent usage



Emphasize Expression

# Our Objectives



Provide a game that helps children with ASD recognize and express emotions



Provide progress tracking for children and caregivers

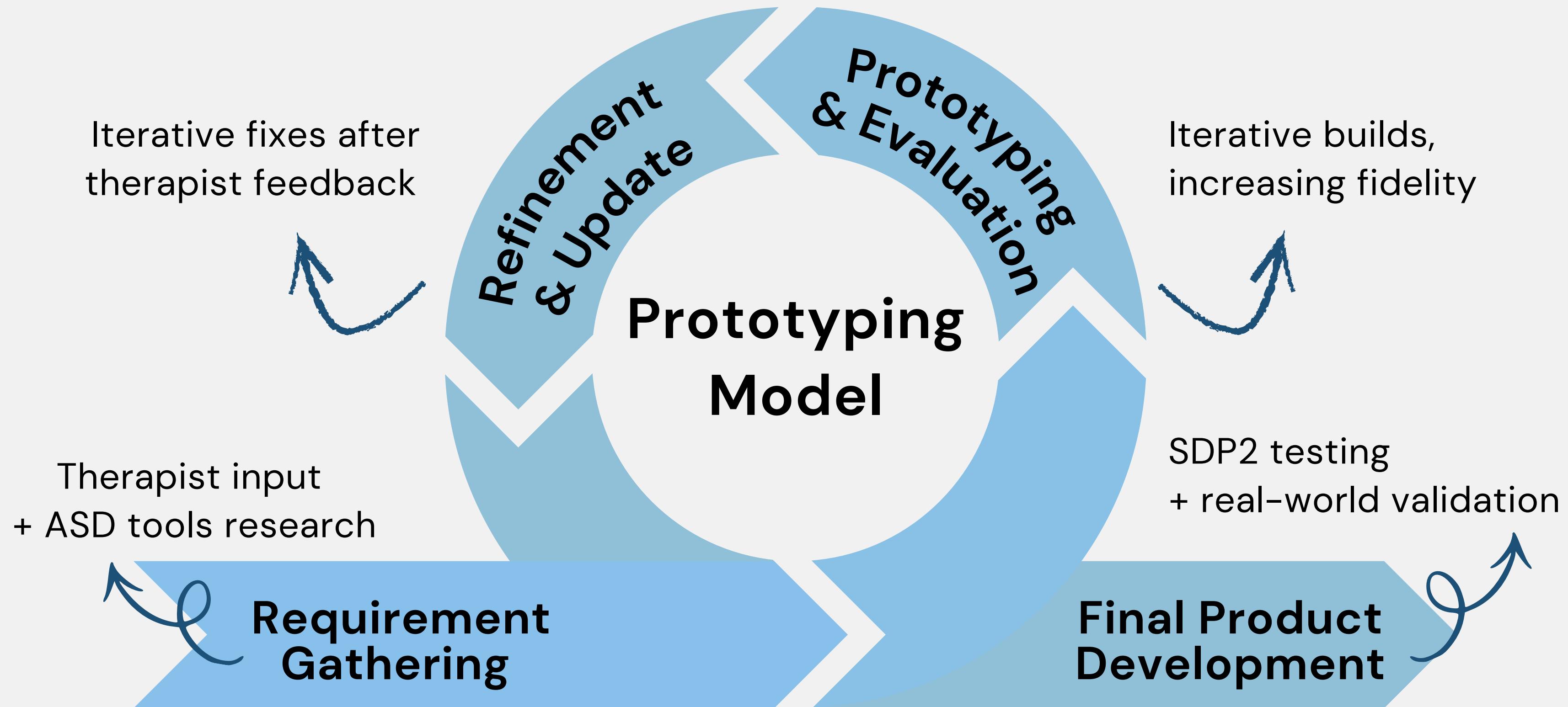


Support diverse user needs through accessible design



Motivate children to keep progressing with features such as in-game rewards

# Software Development Process



# Non-Functional Requirements

## 01 Performance

Swift response and efficient task handling

## 02 Availability

Consistently operational

## 03 Security

Safe data and access to resources

## 04 Usability

Easy use for children with ASD

# Non-Functional Requirements

05 **Accessibility**

Fully operable  
using different  
communication modes

06 **Portability**

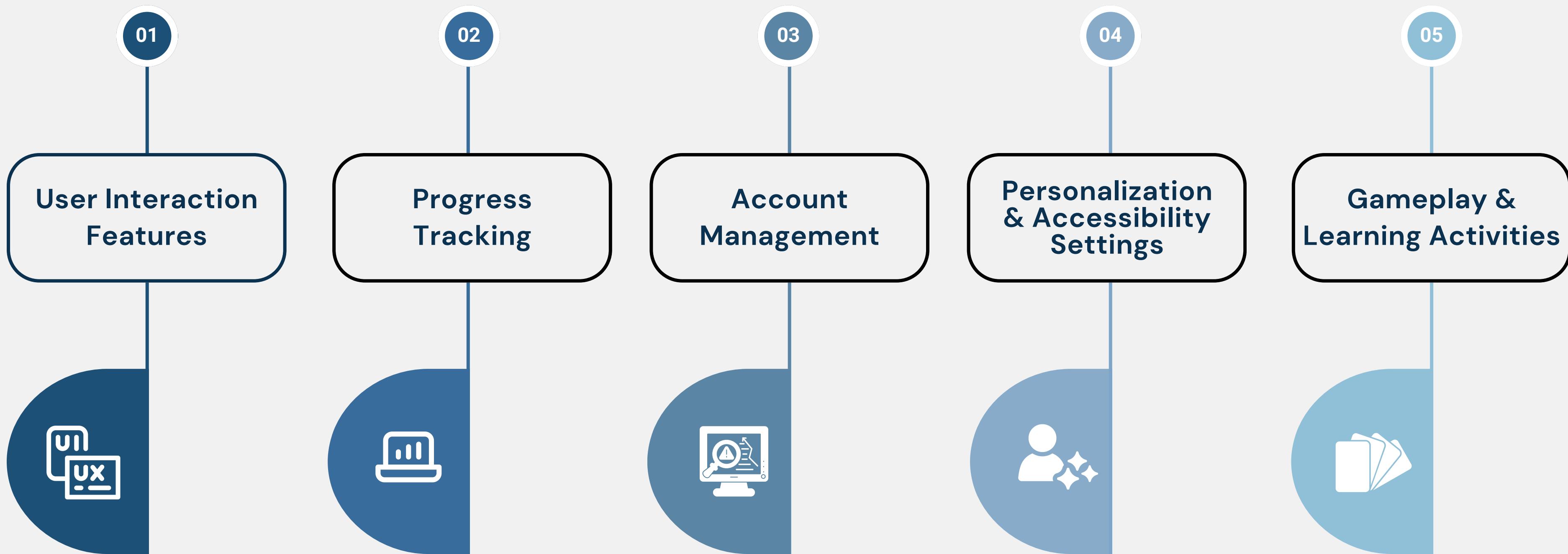
Works well across  
different OS

07

**Privacy**

Child's details are only  
shared with guardians

# Functional Requirements



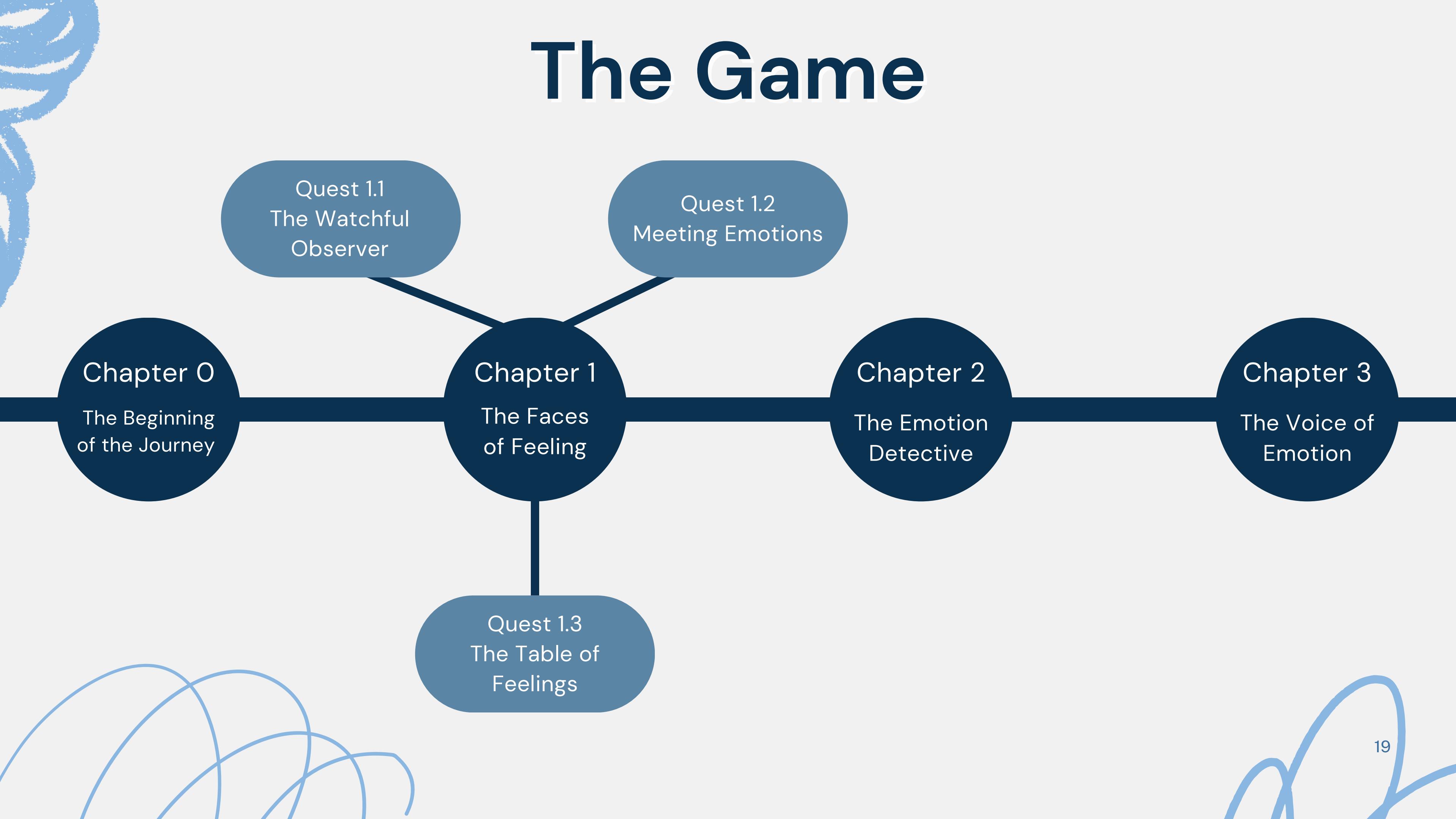
# The Game



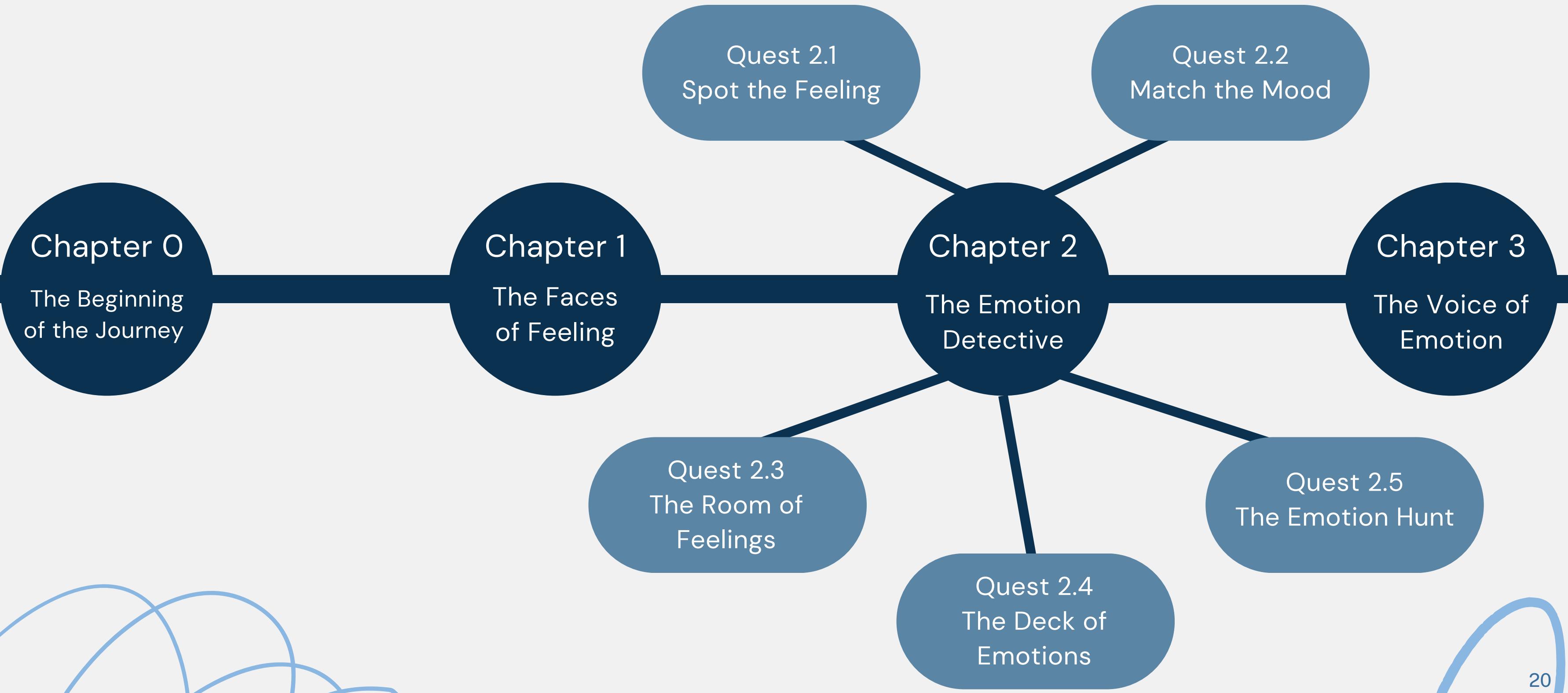
# The Game



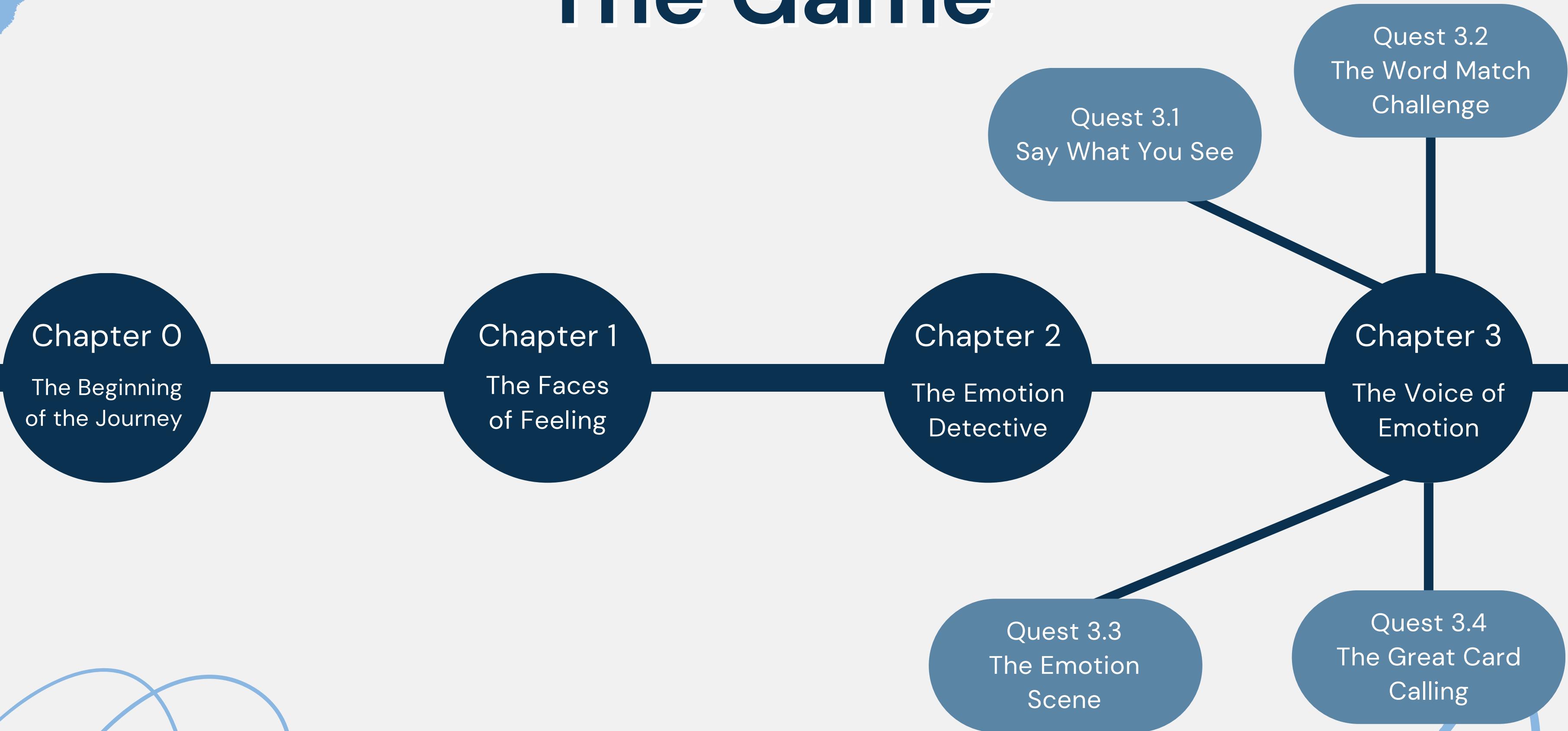
# The Game



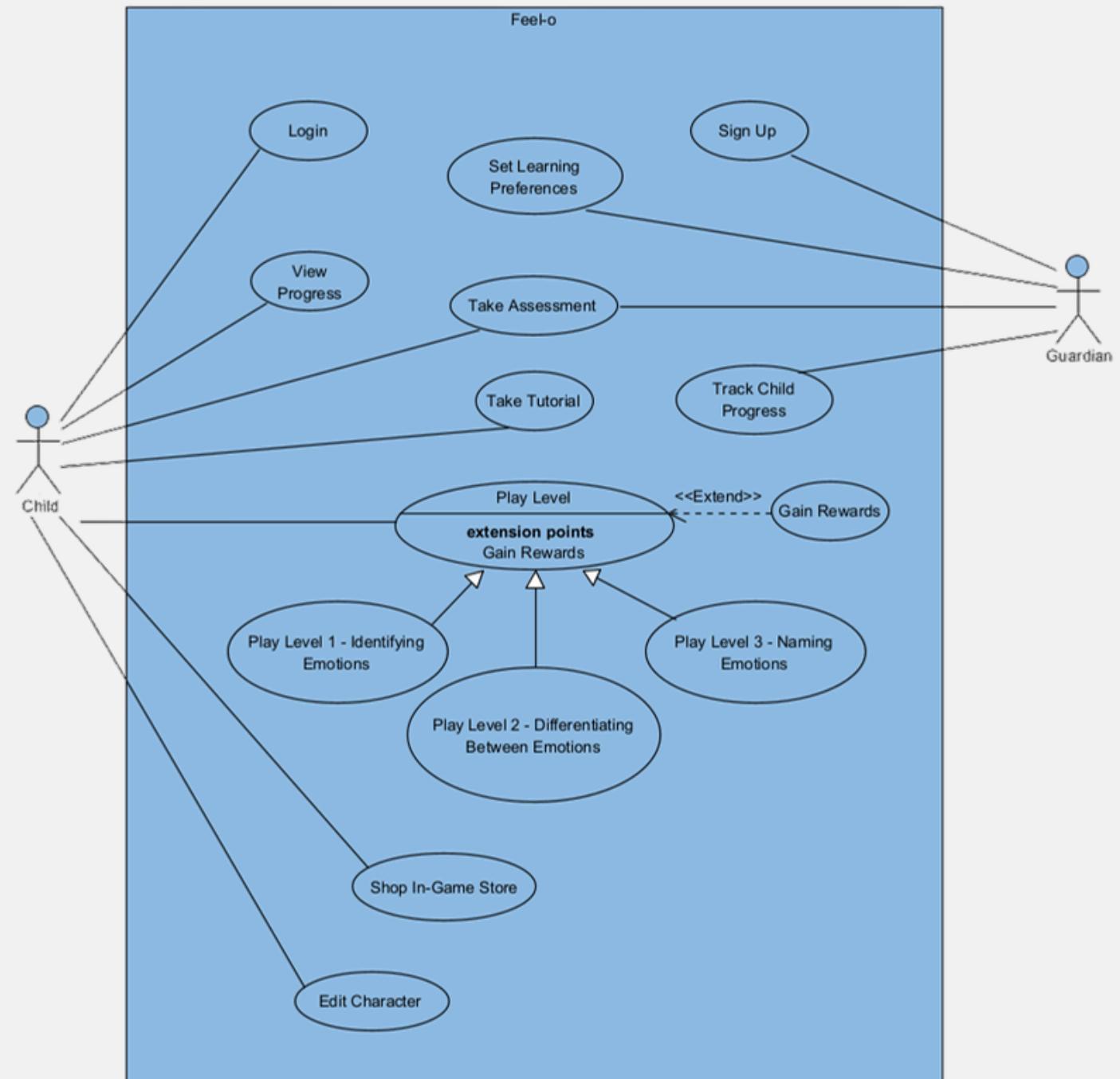
# The Game



# The Game

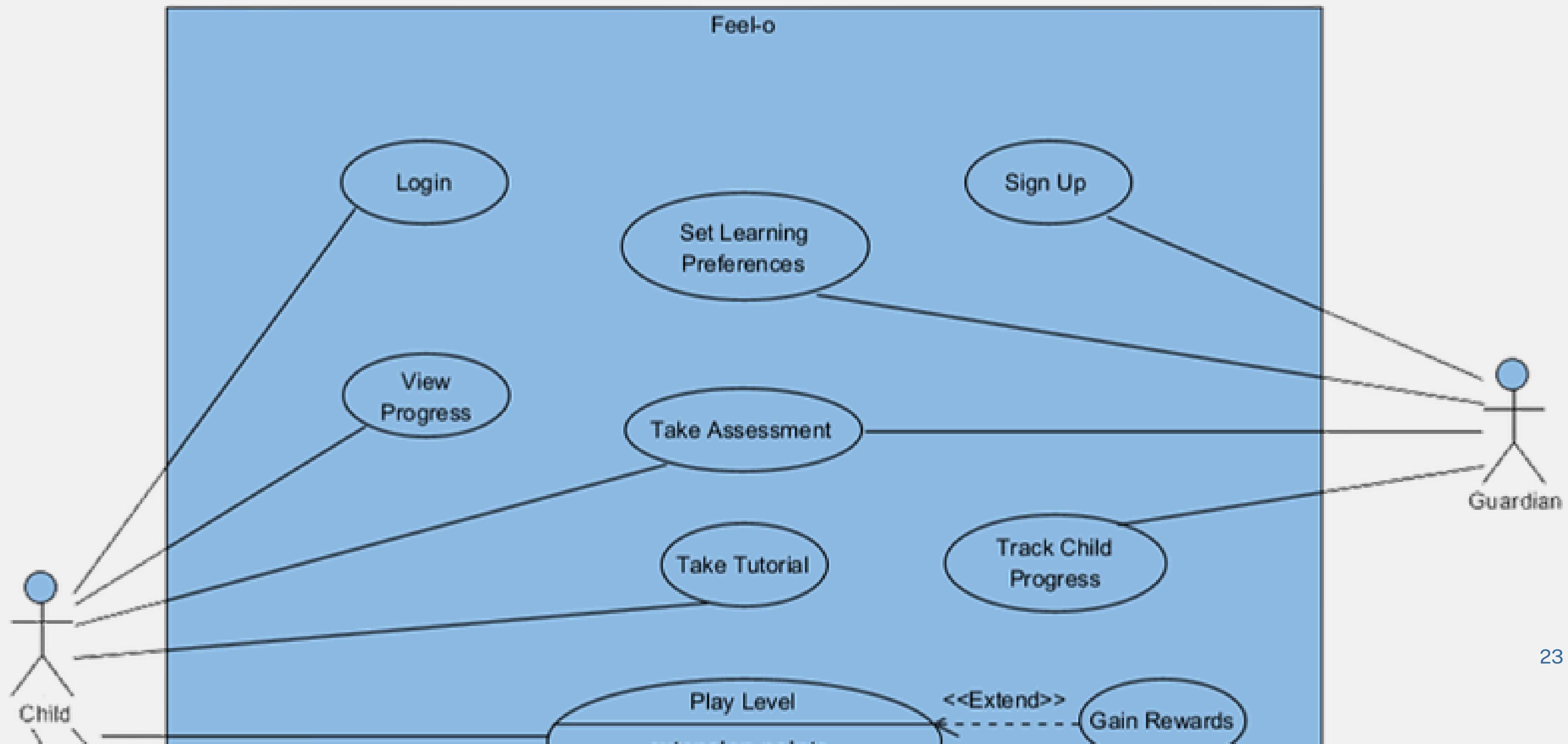


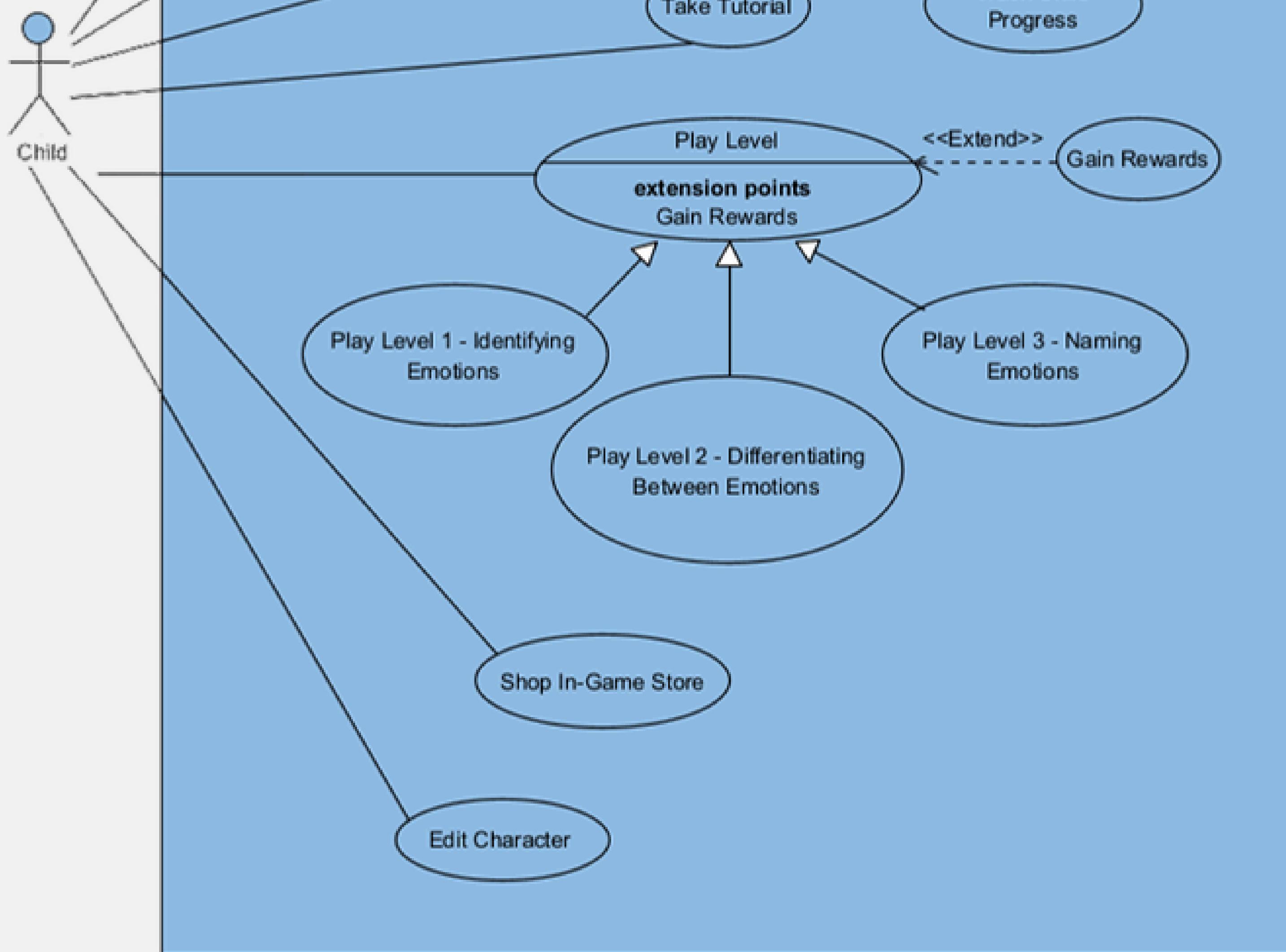
# Use-Cases



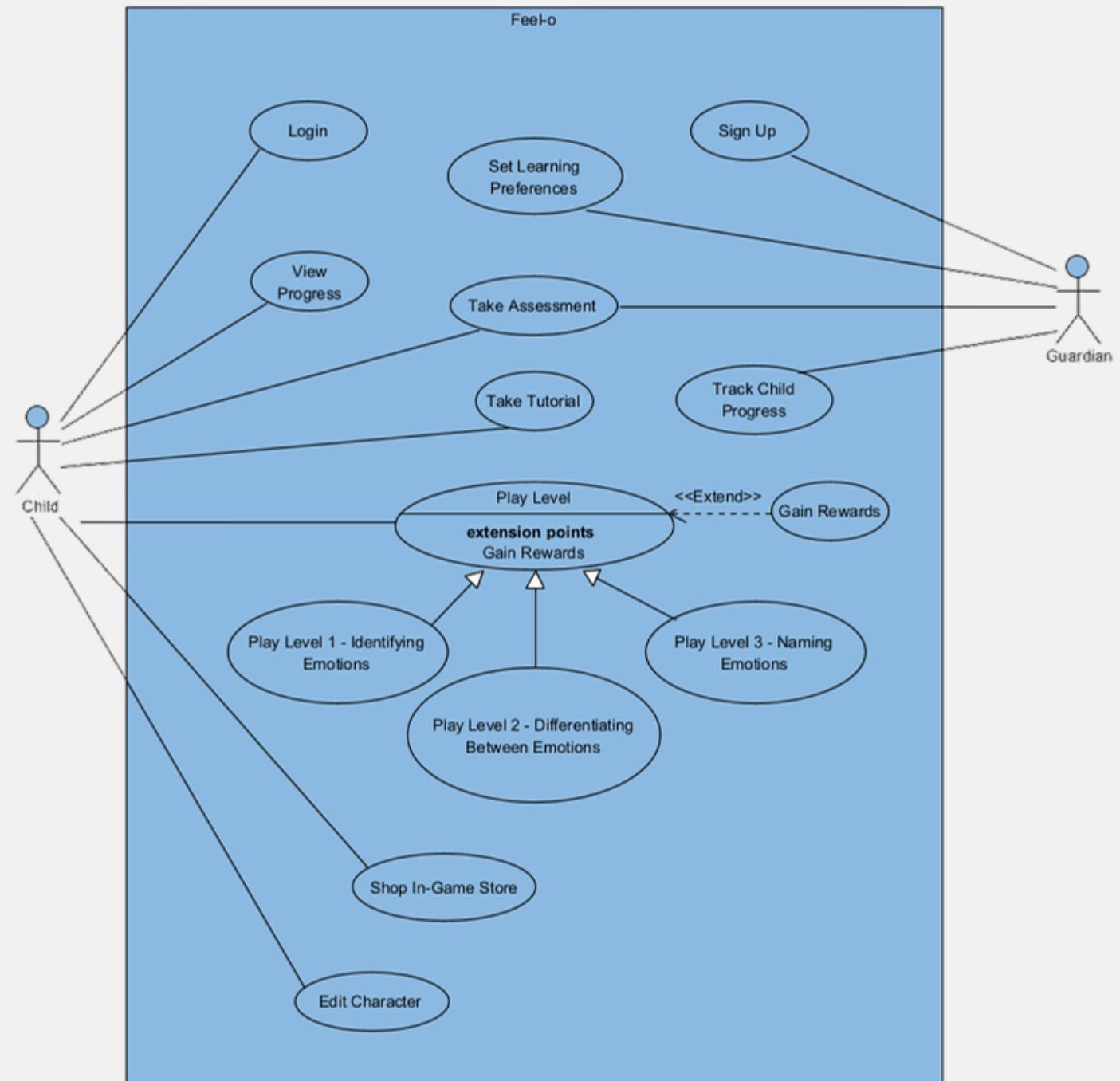
## Implemented Use-Cases

- Sign-up
- Set Learning Preferences
- Login
- Play Level 1 – Identifying Emotions





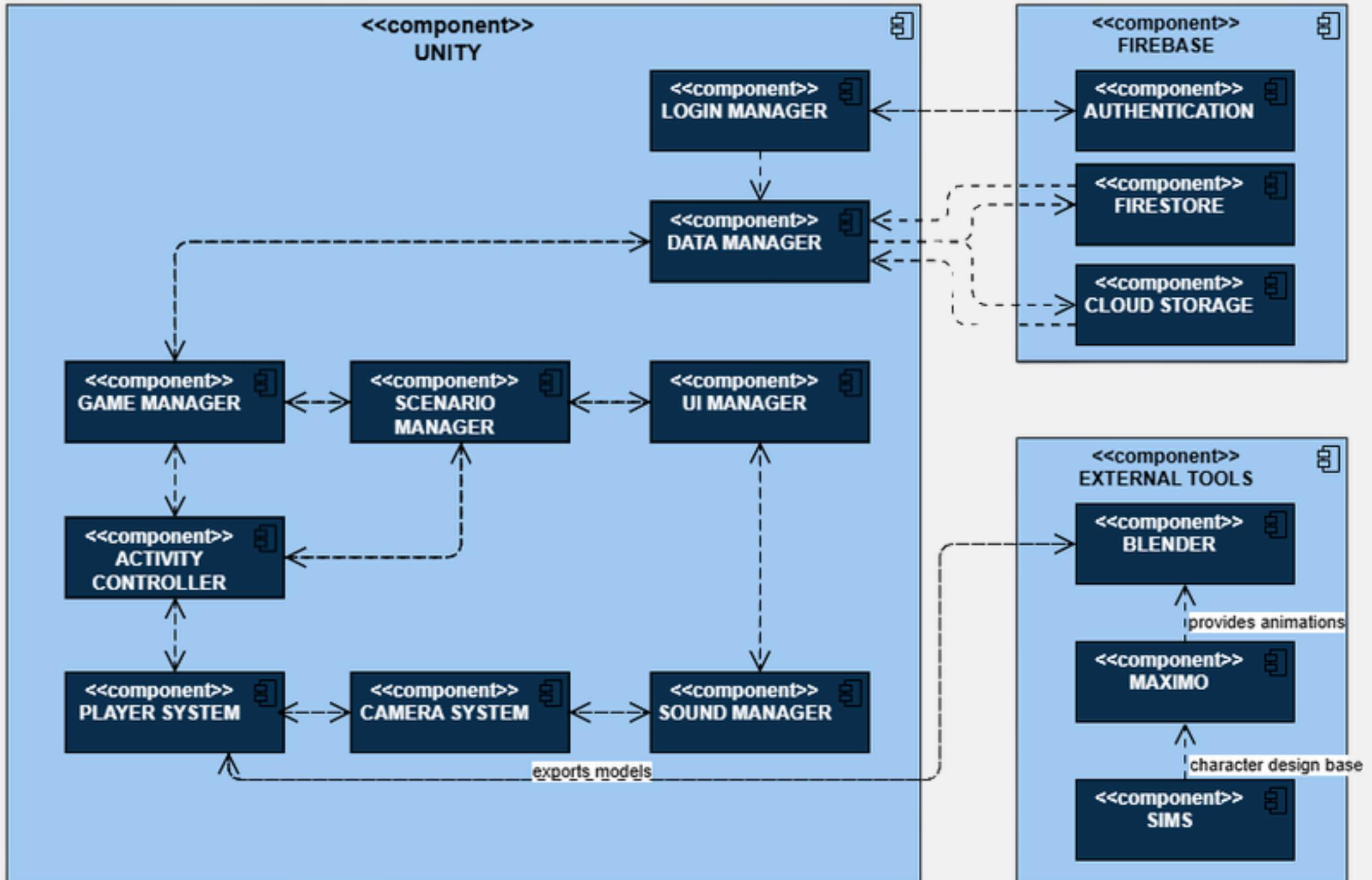
# Use-Cases



## Implemented Use-Cases

- Sign-up
- Set Learning Preferences
- Login
- Play Level 1 – Identifying Emotions

# System Architecture

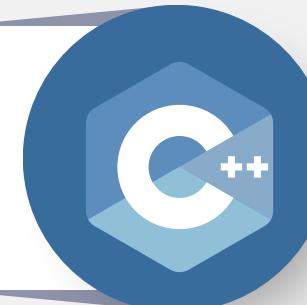
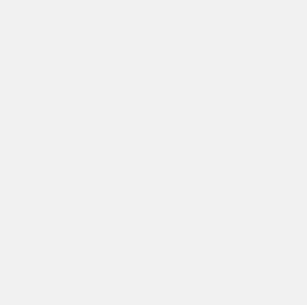
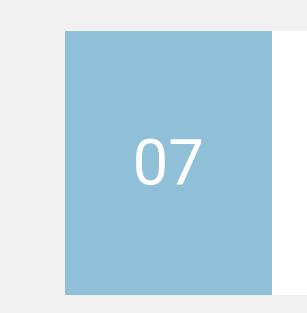


## Benefits

- Modular design
- Reusability
- Loose coupling
- Flexibility
- Follows Unity's structure
- Clear separation of concerns
- Cloud-enabled
- Scalable
- Team friendly

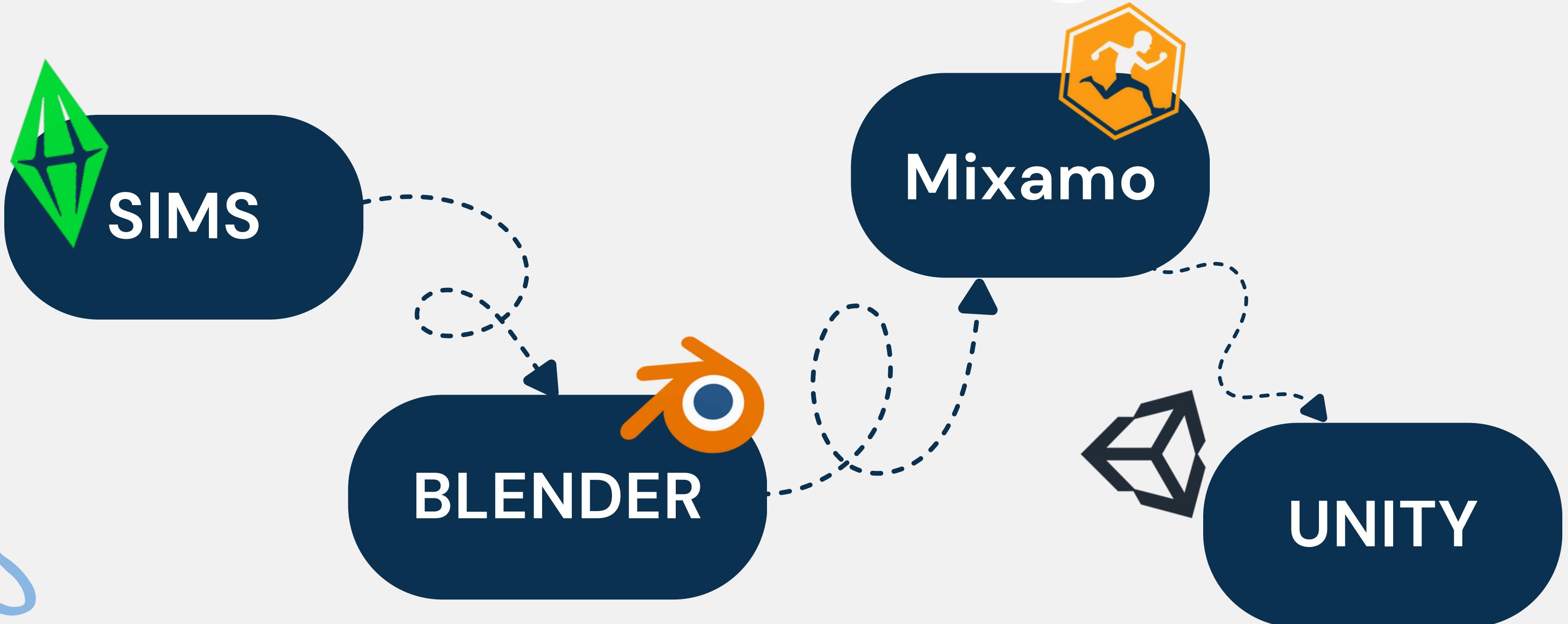
# Challenges and Limitations

## TECHNICAL CHALLENGES

- 01 No prior game/3D modeling experience 
- 02 Design constraints 
- 03 Engaging gamified Lessons/Activities 
- 04 Multi-mode interactions 
- 05 Testing game on multiple platforms 
- 06 Getting Therapist Collaboration 
- 07 Gaining Permission to test game 

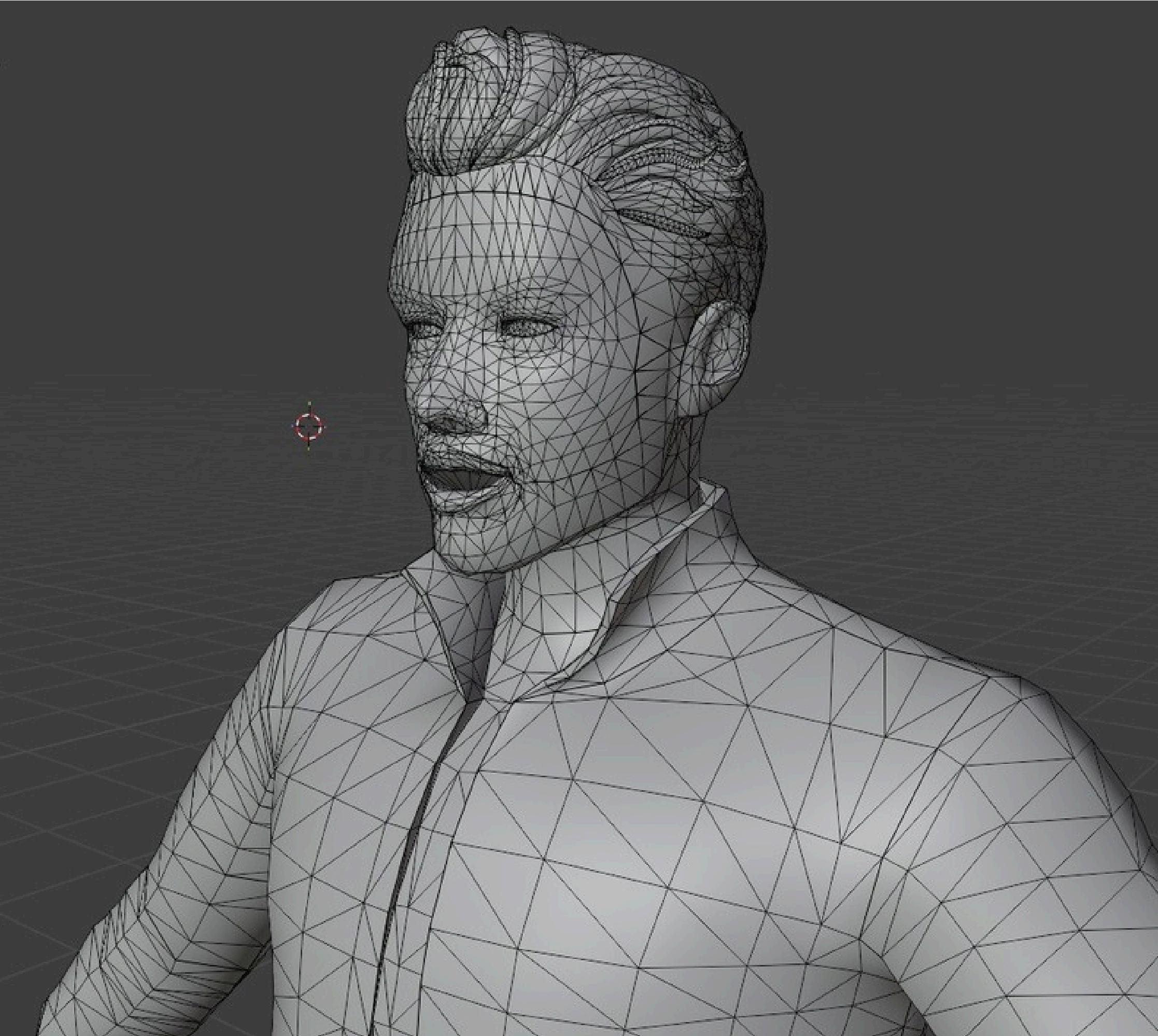
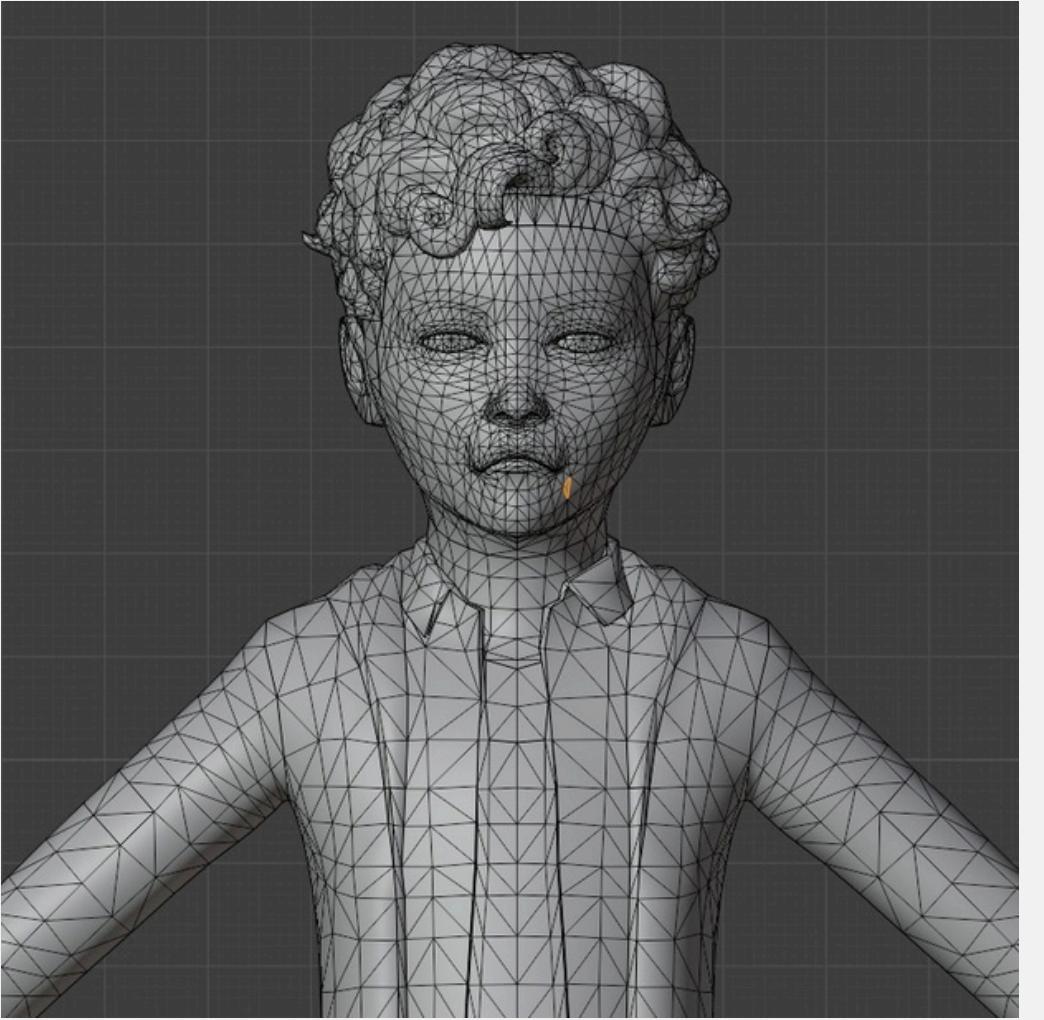
## NON-TECHNICAL CHALLENGES

# Character Building Process













**mixamo** Characters Animations

Search  Per page: 10

AMERA

Character List

- ADD UPDATE
- UPLOAD CHARACTER
- VIEW ANIMATIONS

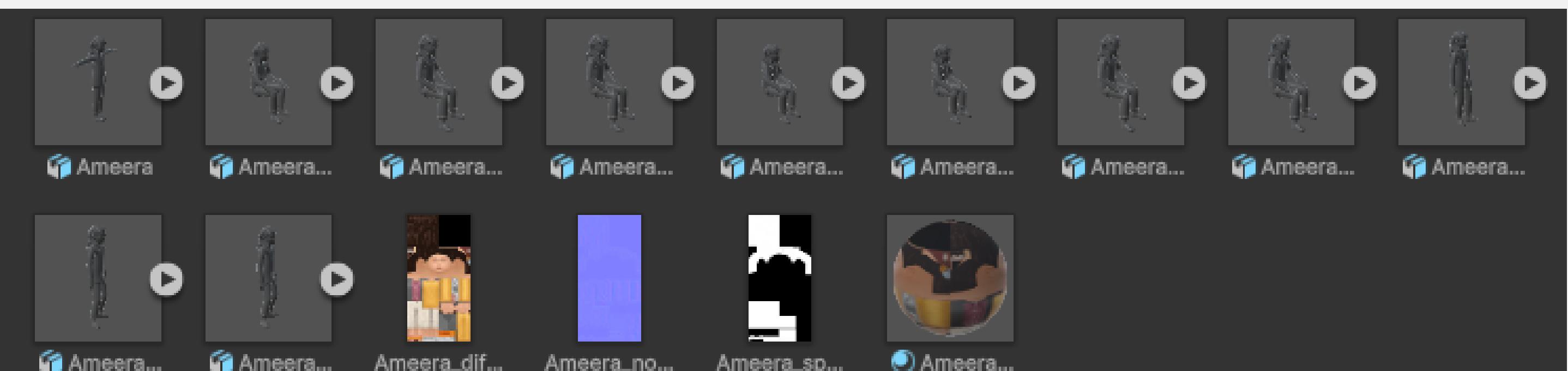
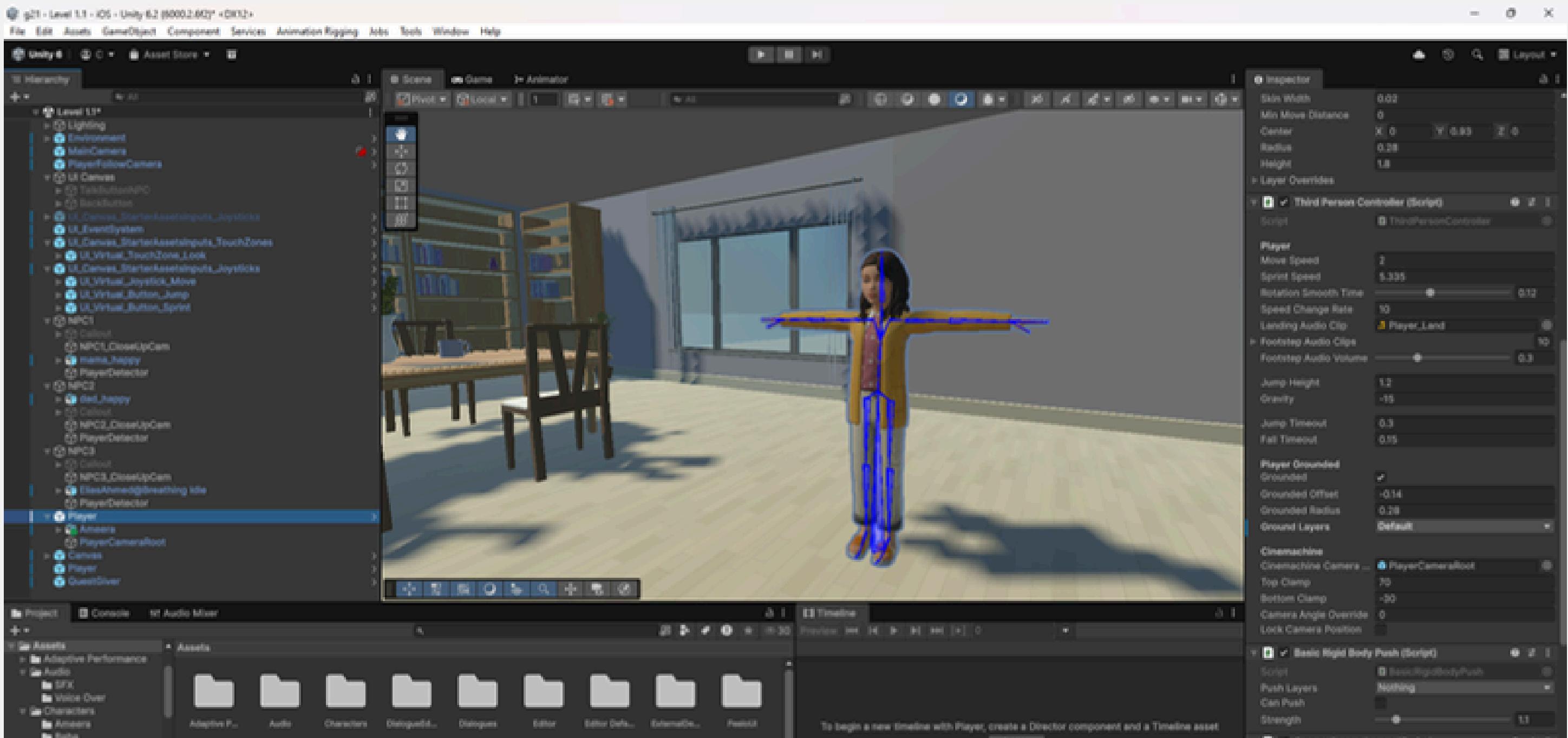
Shoved Position with Arms  
Defeated  
Capture  
Stand  
Old Man Walk  
Sitting Laughing  
Pounce  
Dying  
Jumping Down  
Jumping Down  
Longbow Character Pack  
Sword And Shield Pack  
Capture Pack  
Praying  
Breakout The Shield  
Enter Room Pose  
Kill  
Run  
Scuttle  
Stand



A 3D character model of a boy with curly hair, wearing a light-colored suit. He is standing in a neutral pose. A large black arrow points from the character towards a control panel on the right. The control panel includes tabs for "DOWNLOAD", "AERO UPDATE", and "UPLOAD CHARACTER". A detailed slider interface for "Breathing Idle" parameters is shown, with various sliders and numerical values:

Parameter	Value
Body Type	0
Sway	33
Breathing	100
Overdrive	20
Character Arm-Space	50
Trim 100 total frames	0
100	100
<input type="checkbox"/> Mirror	

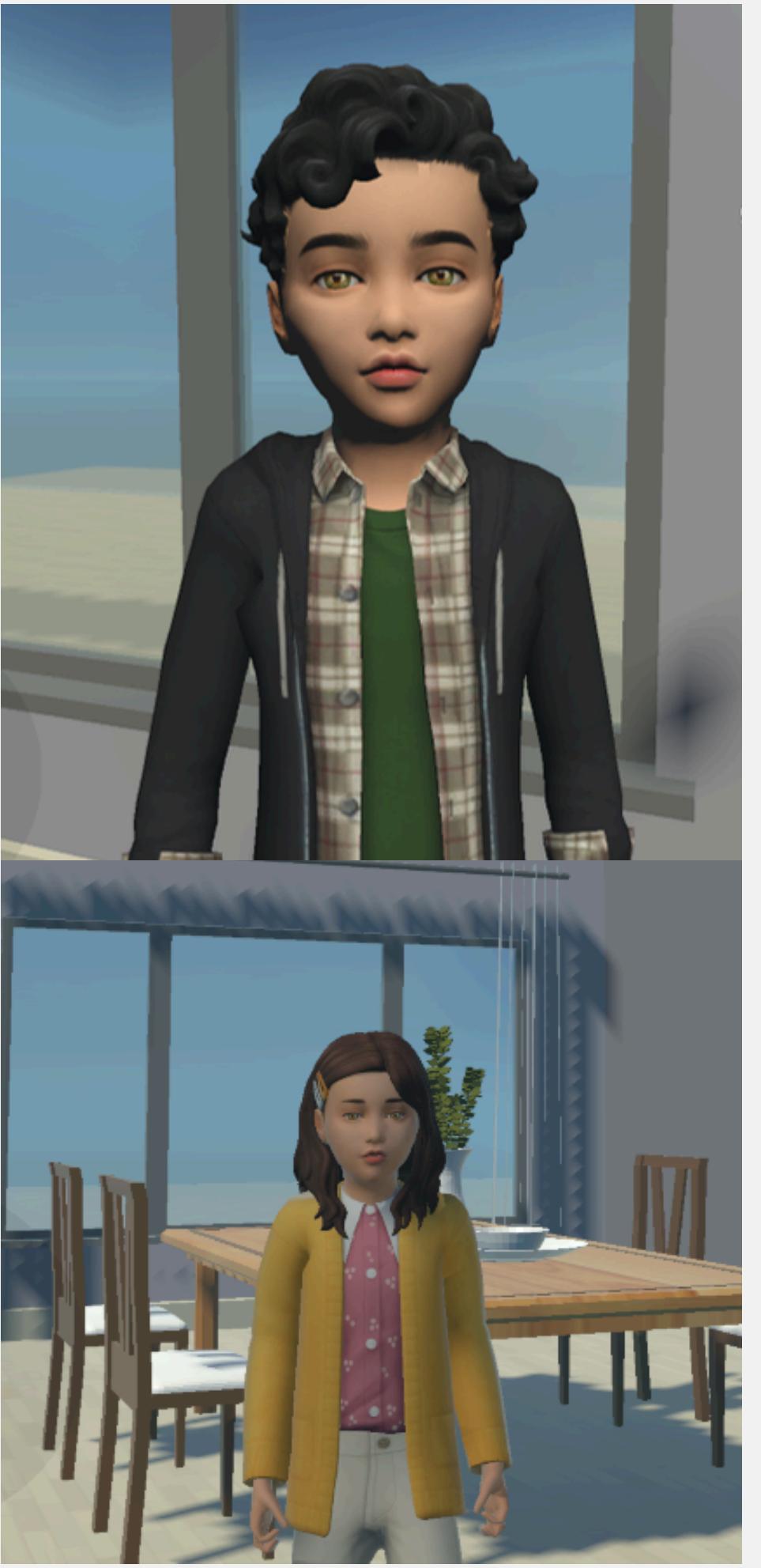
Below the character, a progress bar indicates "278 / 335". To the right, there is a preview window showing a blue humanoid figure with the text "Breathing Idle" below it.





```
    if not isinstance(self, list) and not isinstance(self, dict):  
        raise TypeError("{} is not a list or dict".format(self))  
  
    for key, value in self.items:  
        if not isinstance(key, str):  
            raise TypeError("{} is not a string".format(key))  
  
        if not isinstance(value, list) and not isinstance(value, dict):  
            raise TypeError("{} is not a list or dict".format(value))  
  
        for sub_key, sub_value in value.items:  
            if not isinstance(sub_key, str):  
                raise TypeError("{} is not a string".format(sub_key))  
  
            if not isinstance(sub_value, list) and not isinstance(sub_value, dict):  
                raise TypeError("{} is not a list or dict".format(sub_value))  
  
            for sub_sub_key, sub_sub_value in sub_value.items:  
                if not isinstance(sub_sub_key, str):  
                    raise TypeError("{} is not a string".format(sub_sub_key))  
  
                if not isinstance(sub_sub_value, list) and not isinstance(sub_sub_value, dict):  
                    raise TypeError("{} is not a list or dict".format(sub_sub_value))  
  
    return self
```

Player Detector (Script)	
Script	PlayerDetector
Callout UI	
Callout Group	Callout (Canvas Group)
Callout Fade Duration	0.25
Talk Button UI	
Talk Button Group	TalkButtonNPC (Canvas Group)
Talk Button	TalkButtonNPC (Button)
Talk Button Label	Text (TMP) (Text Mesh Pro UGUI)
Npc Display Name	Elias
Button Fade Duration	0.25
Button Pop Scale	1.05
Back Button UI	
Back Button Group	BackButton (Canvas Group)
Back Button	BackButton (Button)
NPC Interaction	
Npc Interaction	NPC3 (NPC Interaction)
Player	Player (Player)
Level Complete Wind...	LevelCompleteWindow
Lit (Material)	
Shader	Universal Render Pipeline/Lit
	Edit...



# Gameplay



# DEMO

**Thank you  
very much.**