



# SYSTEM INTEGRATION AND ARCHITECTURE 1

# CODE CONQUEST

THE ADVENTURE  
GAME

Year 2024-2025

2<sup>nd</sup> Year of 2<sup>nd</sup> Semester



# MEMBERS

02/23



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# INTRODUCTION

03/23

This project aims to create a game that teaches basics programming in a fun and interactive way. By using a tile-based coding system and turn-based mechanics, the game allows players to learn programming concepts through gameplay.

The goal is to make learning to code more engaging, natural, and memorable. Players arrange code tiles to solve problems, see the results of their code, and learn from it. The game's progressive approach introduces simple concepts first, unlocking more advanced ones as players progress. This interactive method is designed to make learning to code more effective and enjoyable for beginners.



# INTRODUCTION

04/23

According to some notable game designers and researchers Jesse Schell, Katie Salen and Eric Zimmerman, who have written about game systems and designs, a game is a system because it composed of interconnected parts, such as game mechanics, resources, and technical systems, which is a general concept in game design and development. This perspective is commonly shared among game designers, developers, and researchers in the field.



# BOOKWORM ADVENTURES

Bookworm Adventures is a video game published in 2006 on Windows by PopCap Games, Inc. It's an educational, role-playing (rpg) and puzzle game, set in a reading / writing, real-time, turn-based and word construction themes.

## GAME FUNCTIONS:

- Word Puzzle Mechanics: Players create words from a grid of letter tiles to complete puzzles and unlock new areas of the adventure.
- Adventure Progression: The game features a storyline that unfolds as the player advances through levels, with each stage offering different challenges.
- Power-ups and Rewards: Players earn power-ups and other rewards that assist in solving puzzles and progressing faster through levels.
- Character Development: The game offers character progression through the completion of challenges, with different levels and difficulty settings.



05/23



**PopCap**  
Games



# Statement of the Problem

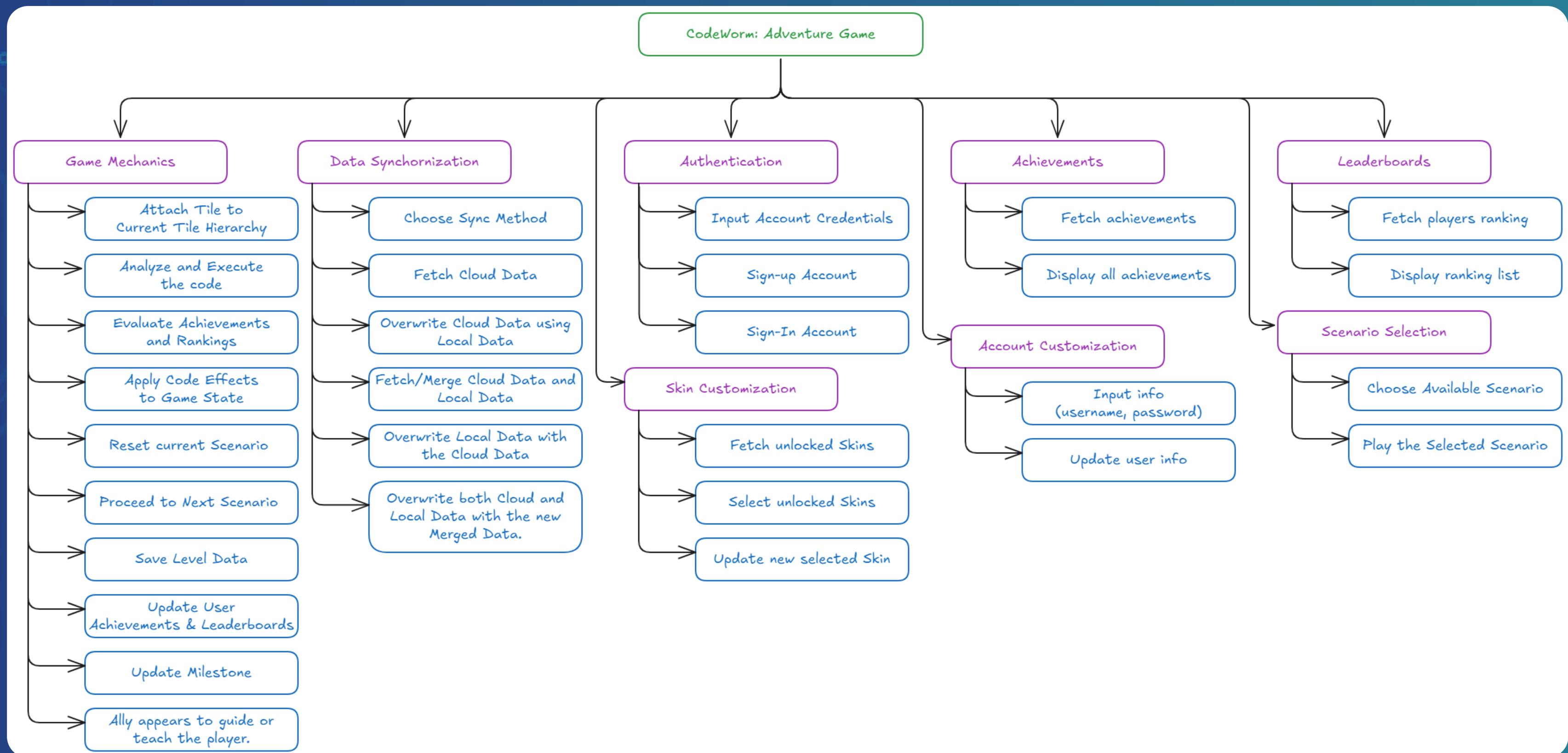
## Educational Challenges

- Writing code from scratch is intimidating
- Concepts feel disconnected or too abstract
- Feedback in traditional settings is too slow or unclear
- Students don't know what they've actually learned
- Lessons feel dry or overly academic
- Learners lose interest easily without incentives
- Not all learners have access to desktops



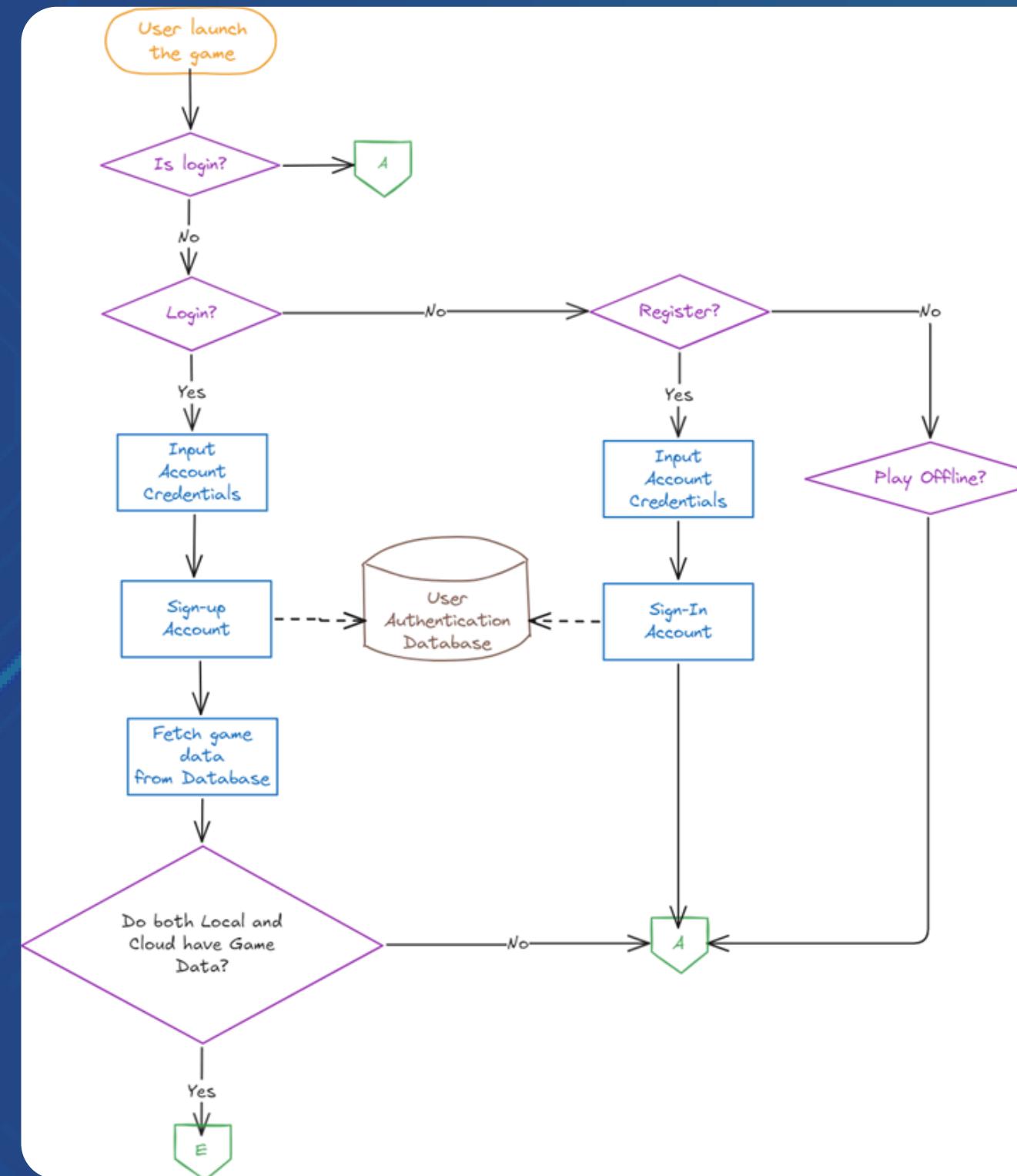
# FUNCTIONAL DECOMPOSITION DIAGRAM

07/23

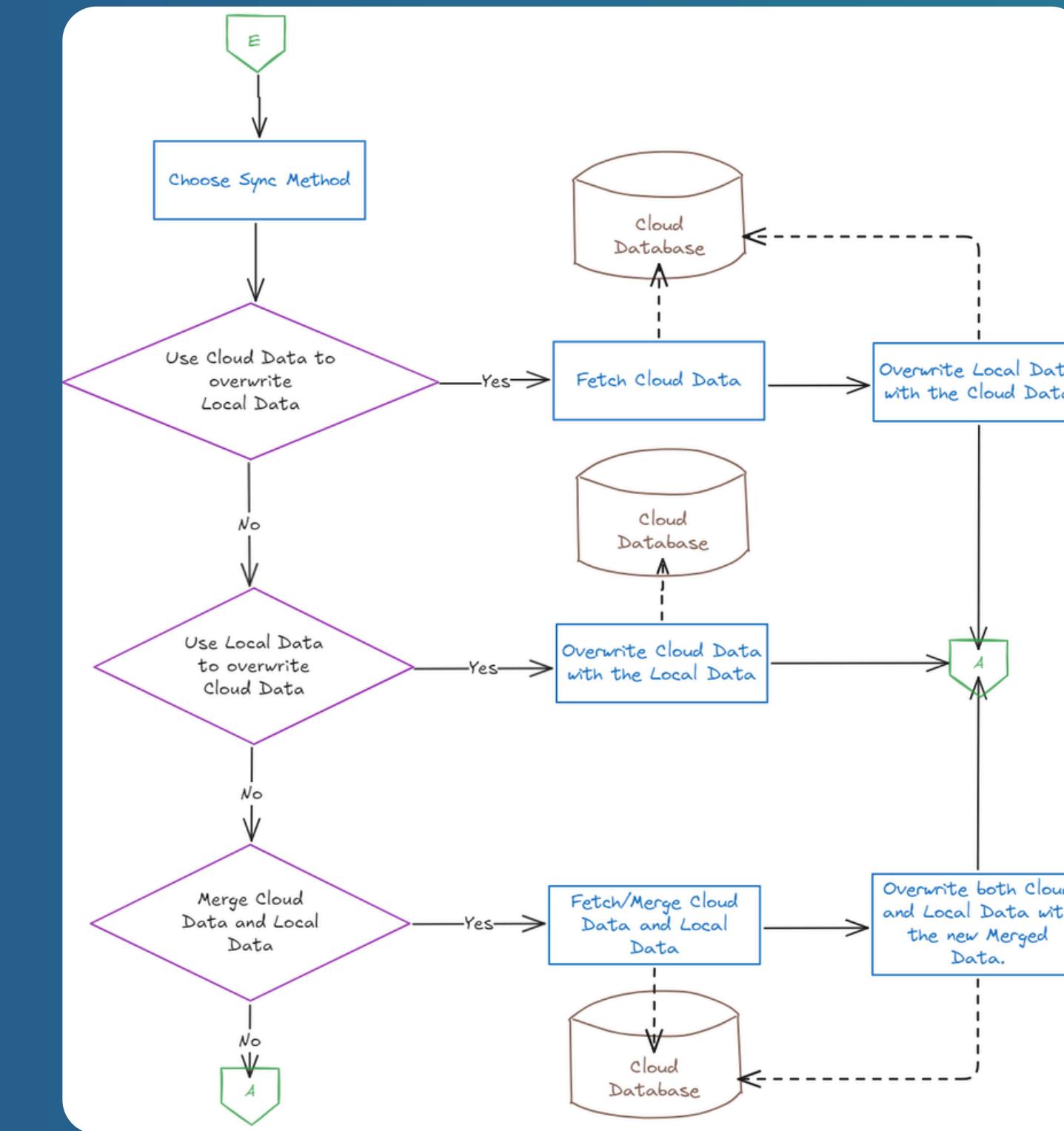


# SYSTEM FLOWCHART OF THE PROPOSED SYSTEM

08/23



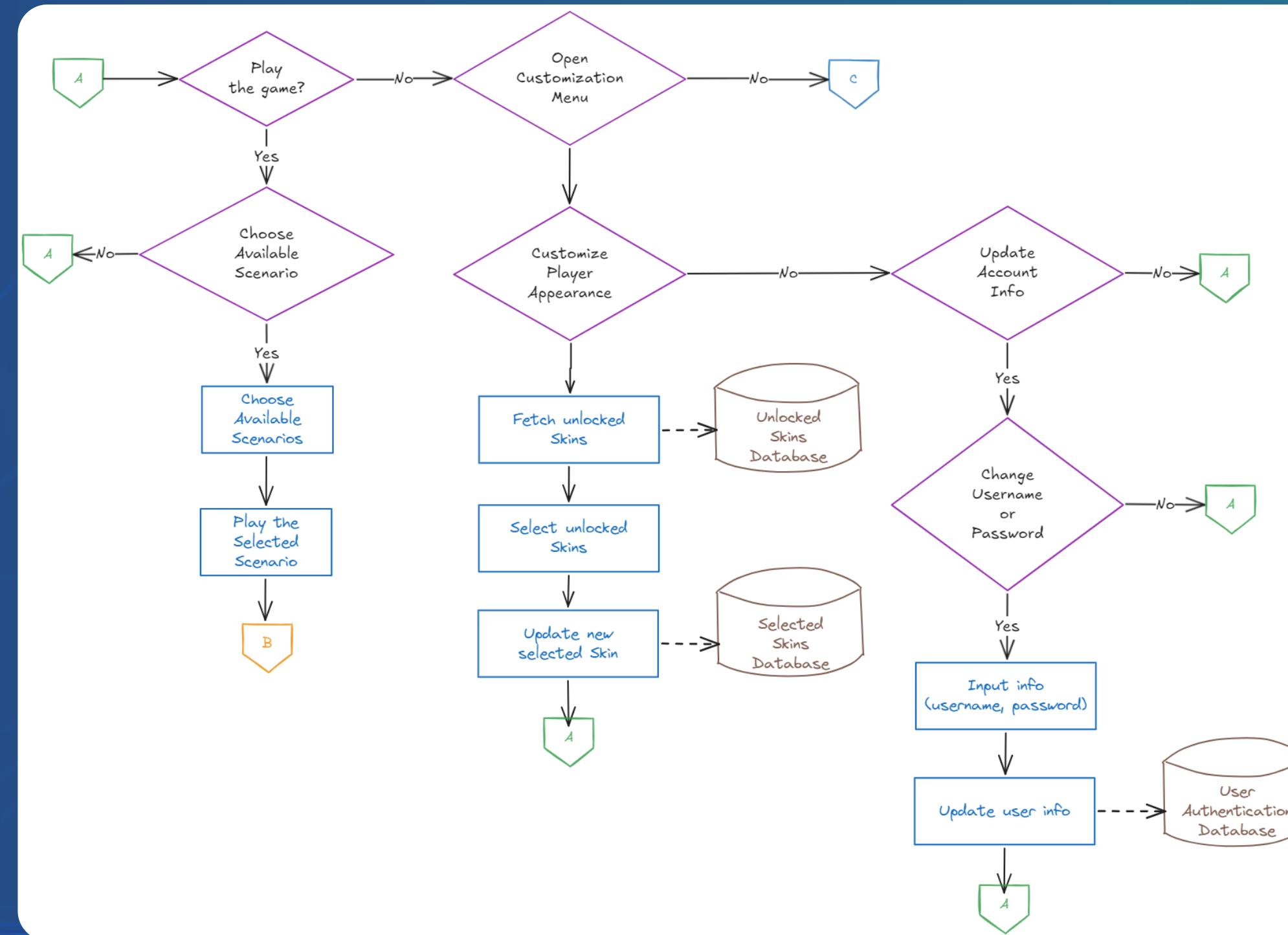
User Authentication



Data Synchronization

# SYSTEM FLOWCHART OF THE PROPOSED SYSTEM

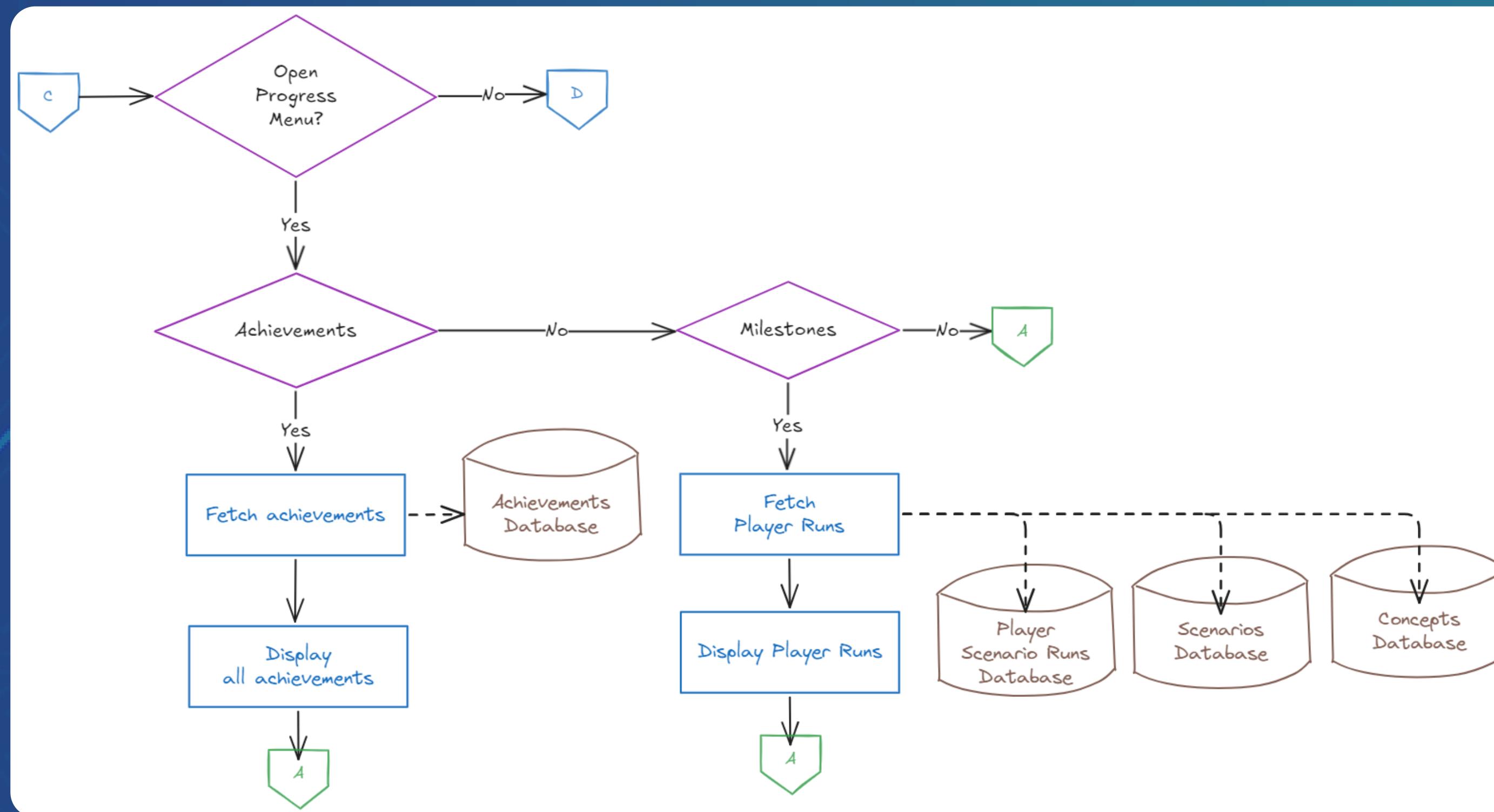
09/23



Play the game & Customization Menu

# SYSTEM FLOWCHART OF THE PROPOSED SYSTEM

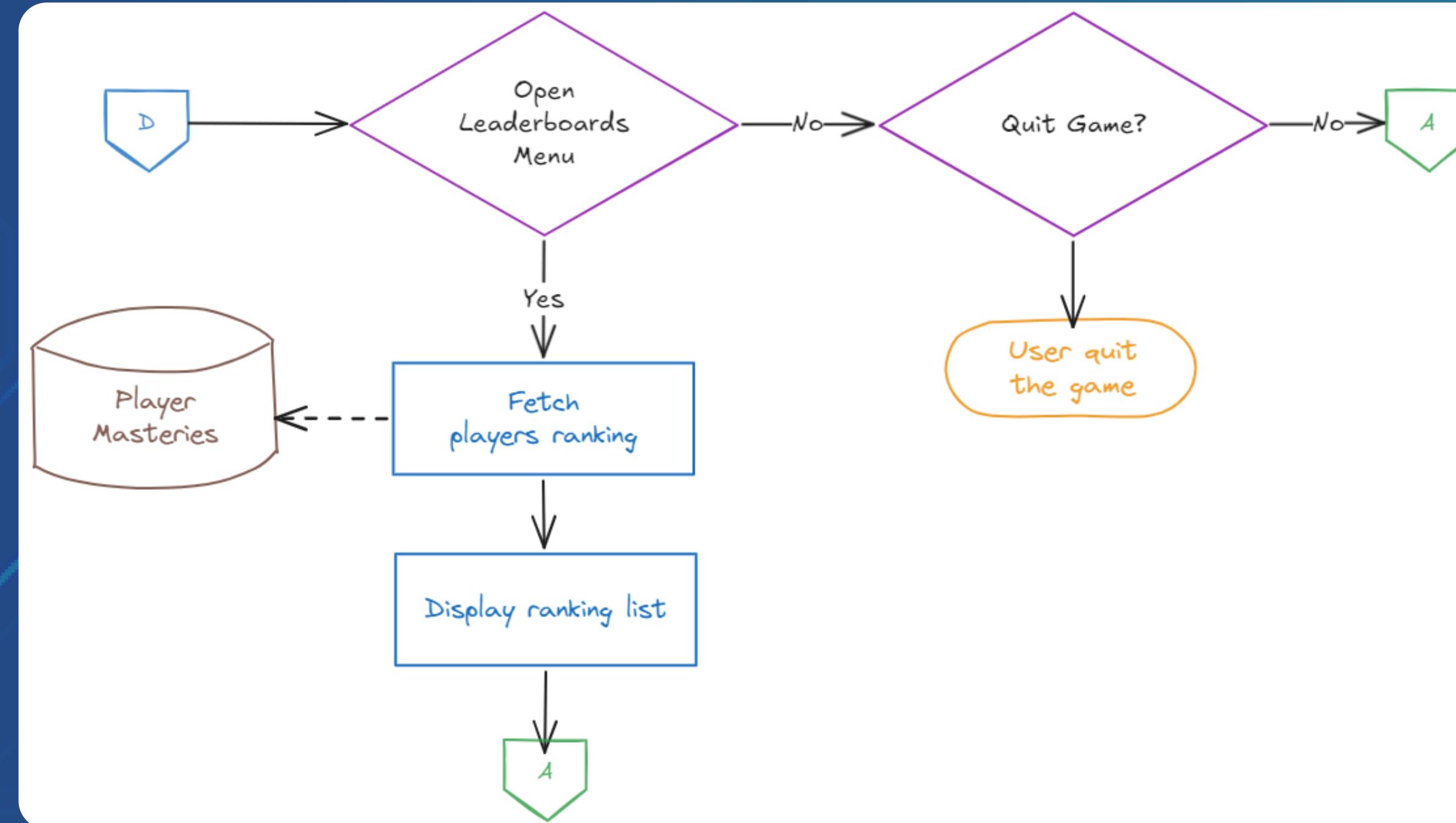
10/23



Progress Menu

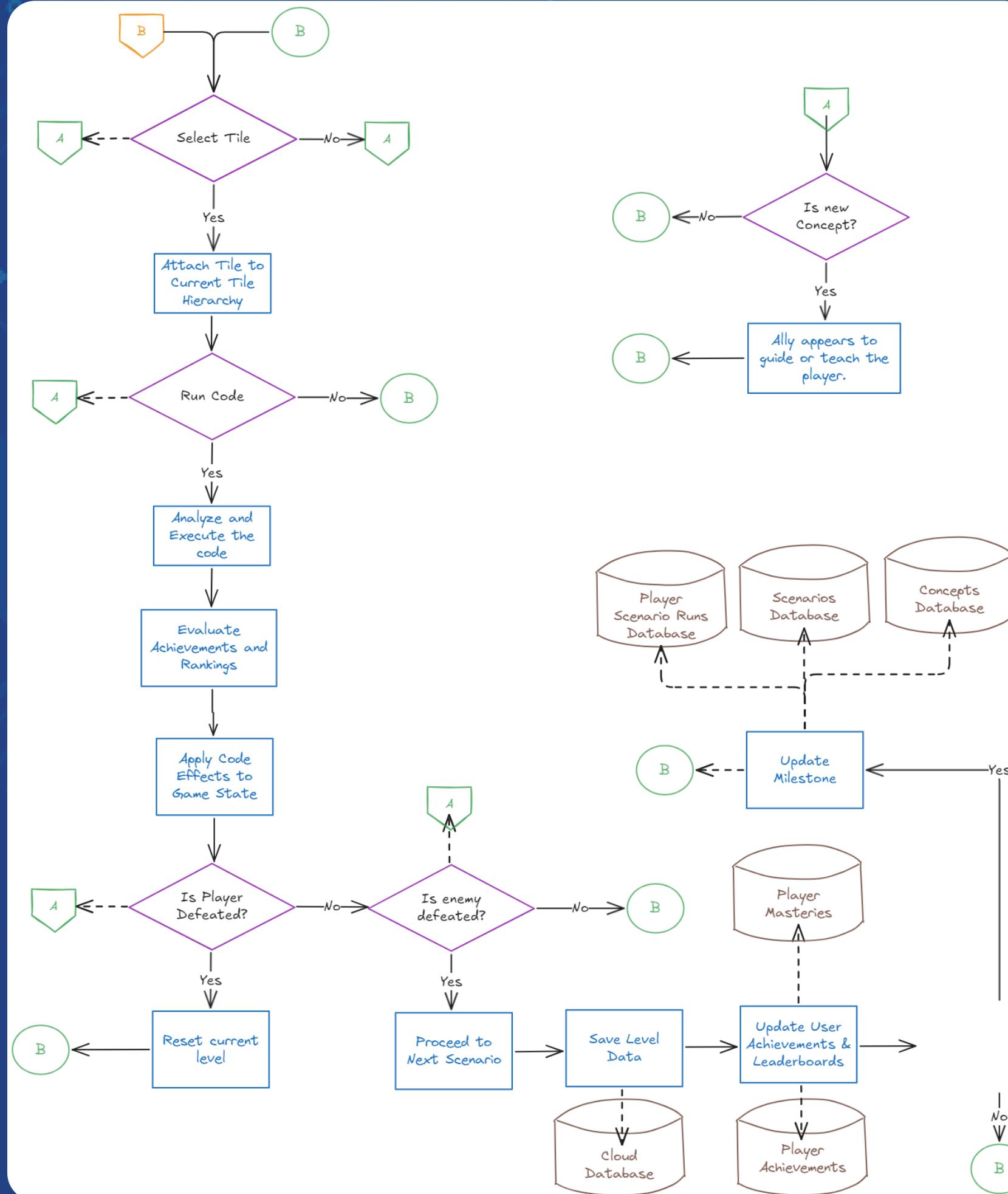
# SYSTEM FLOWCHART OF THE PROPOSED SYSTEM

11/23



Leaderboards

## Gameplay Loop



# SYSTEM FLOWCHART OF THE PROPOSED SYSTEM



# PROTOTYPE AND UI DESIGN

13/23



User  
Authentication



Data  
Synchronization

# PROTOTYPE AND UI DESIGN

14/23



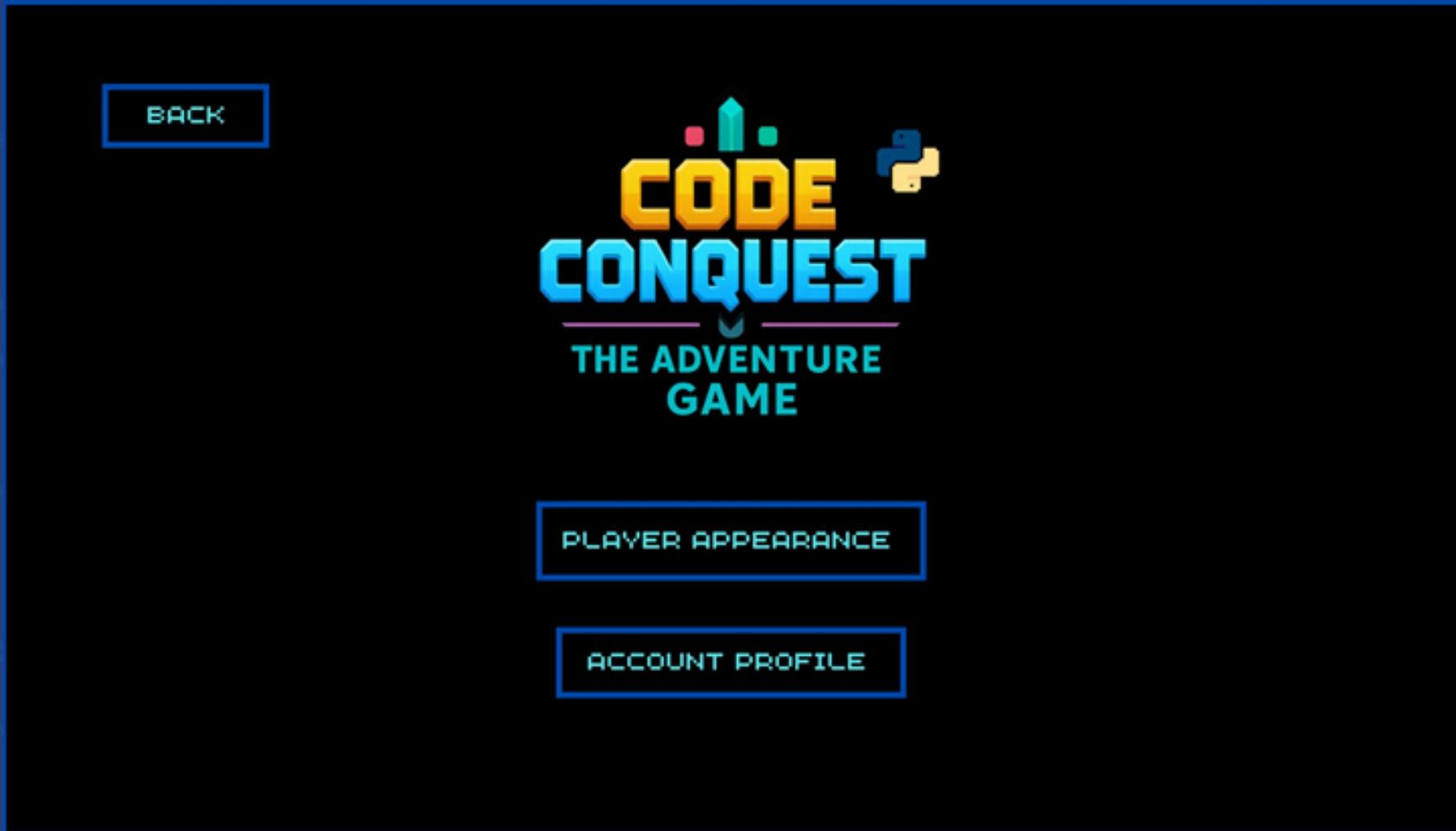
Main Menu



Scenario Selection

# PROTOTYPE AND UI DESIGN

15/23



Customization  
Menu

The image shows the 'Account Info' screen. It features a 'BACK' button at the top left. The title 'Account Info' is centered in large, blue, outlined text. Below the title, the user's current information is shown: 'USERNAME: Codeworm' and 'EMAIL: example@gmail.com'. There are two input fields: one for 'USERNAME' and one for 'PASSWORD', both labeled 'INPUT USERNAME' and 'INPUT PASSWORD' respectively. At the bottom right are 'SAVE' and 'EDIT' buttons.

User Info

# PROTOTYPE AND UI DESIGN

16/23



Skin Selector



Progress Menu  
(Milestone)

# PROTOTYPE AND UI DESIGN

17/23



Progress Menu  
(Achievements)



Leaderboards

# PROTOTYPE AND UI DESIGN

18/23



Battle UI  
(Concept Tutorial)

Battle UI  
(Fighting Enemy  
with Ally Guidance)

# PROTOTYPE AND UI DESIGN

19/23



Battle UI  
(Fighthing Enemy without Guidance)

# PROTOTYPE AND UI DESIGN

20/23



Battle UI  
(Fighthing Enemy without Guidance)

# COST ANALYSIS

21/23

Expense Category	Estimated Cost (PESO)	Description
Technical Specifications	₱2,960	Godot Game Engine (Free and Open Source). Cloud-Service (Supabase - Free tier, but reserved budget for growth or subscription plan). Android (for publishing on Google Play Store).
Game Assets	₱5,000	Creating/buying/downloading assets such as 2D/3D characters, animations, environments, and UI elements.
Game Programming + Prototyping	₱15,000	The programming effort will focus on testing the core mechanics (like tile-based coding, battle mechanics, etc.) and building the prototype with basic functionality.

# BENEFITS FROM THE SYSTEM

This game makes learning to code easier and more fun. Instead of memorizing rules, players learn by doing—connecting code tiles to solve challenges.





# Thank You!

