GLOBAL RECIPROCAL COLLEGES
COLLEGE OF COMPUTER STUDIES

SYSARC 1
SYSTEM INTEGRATION AND ARCHITECTURE 1

TILE-BASED PROGRAMMING MOBILE GAME

A FEASIBILITY STUDY
PRESENTED TO THE COLLEGE OF COMPUTER STUDIES OF GLOBAL RECIPROCAL COLLEGES
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY

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Acknowledgements

First and foremost, we offer our sincerest gratitude to God for the guidance, strength, and perseverance He bestowed upon us throughout this feasibility study. His blessings enabled us to overcome challenges and complete this important undertaking.

We extend our deepest appreciation to our families for their unwavering support and understanding. Their encouragement and sacrifices allowed us to dedicate the necessary time and effort to this project. We are especially grateful for their emotional support during stressful periods

Our heartfelt thanks go to our mentors and stakeholders, whose expertise and insights were invaluable in shaping the direction and scope of this study. Their feedback on our methodology and insights into market trends proved crucial.

Special thanks to the creators of *Bookworm*, whose clever use of tile-based interaction inspired the core mechanics of this project. The game's engaging format helped shape the concept of learning through visual and interactive design.

Finally, we acknowledge the contributions of each member of our group. We faced challenges and differing perspectives, but through collaboration and mutual respect, we successfully navigated these hurdles and achieved our shared goal. The teamwork and camaraderie developed during this project will be a cherished memory.

Dedication

This feasibility study is dedicated to our parents, whose love, support, and belief in our abilities have been the foundation of our success. Their unwavering encouragement and sacrifices have made this achievement possible.

We also dedicate this work to future innovators and learners, hoping it will contribute to progress and inspire new ideas. This study represents our commitment to innovation and its potential to make a positive impact.

Introduction

Learning to code is becoming more important every day. This project aims to create a game that teaches the basics of programming in an interactive and fun way. The goal is to explore if a tile-based coding system can help players understand programming concepts through gameplay. Additionally, we want to see if turn-based mechanics can make learning easier and more memorable.

Games are being used more to teach complex subjects because they make learning engaging. At the same time, coding skills are needed in almost every industry. This project combines both ideas by turning coding into a game where players connect tiles to create programs. Simple concepts are introduced first, with more advanced ones unlocked as players progress. This approach makes learning natural and less intimidating.

In the game, players arrange code tiles to solve problems, then see the results of their code. Mistakes are part of the learning process, with the game showing what went wrong. The turn-based system gives players time to think and fix their code, just like real programming. This method is designed to make learning to code more effective and enjoyable for beginners.

This project is meant to explore how this game can help people learn programming. We aim to create a fun and useful tool to teach coding skills in a way that is easy to understand.

Scope and Objectives

Project Name and Description Tile

Game Title: Code Conquest: The Adventure Game

Description:

Code Conquest is a mobile game designed to teach Python programming through interactive, tile-based coding mechanics. The game covers key programming concepts such as variables, data types, and data structures, using a turn-based battle system. Players click tiles to build valid Python code—correct code damages enemies, while incorrect code results in counterattacks. This approach gamifies learning, providing engaging, scenario-based challenges that reinforce programming logic.

Inspired by *Bookworm Adventure Deluxe*, the game teaches programming in the same way *Bookworm* teaches vocabulary, through progressively challenging puzzles. It follows a similar structure, with increasing difficulty and challenges that help players learn new concepts and reinforce their understanding.

Project Objectives

The primary objective of this project is to create an interactive learning environment where users can develop their programming skills in a gamified setting. The game will guide players through a series of progressively challenging scenarios that focus on fundamental programming concepts. Each scenario will introduce a new concept and challenge the player to apply that concept in order to proceed to the next level.

The specific objectives of this project are as follows:

- **Create an Engaging Learning Experience**

  Develop a turn-based, tile-based game that integrates educational content with engaging gameplay. The game will feature multiple levels, each focusing on a specific programming concept (e.g., variables, data types, control flow, functions).

- **Teach Core Programming Concepts**

  The game will cover foundational programming concepts, such as variables, data types, loops, conditionals, functions, and data structures, ensuring that players gain a solid understanding of these key concepts.

- **Facilitate Concept Mastery Through Repetition**

  The game will be designed to introduce each concept multiple times, each time applying the concept in a slightly different context. This approach will help players reinforce their learning and master the concepts by revisiting them.

- **Provide Real-Time Feedback**

  Players will receive immediate feedback on their code choices. Correct code will allow them to progress in the game, while incorrect code will result in penalties, such as enemy counterattacks. This will encourage learning through trial and error.

- **Design a User-Friendly Interface**

  The game will have an intuitive interface, allowing players to focus on learning and problem-solving without being overwhelmed by complex controls or navigation. The layout will be designed for ease of use, even for beginners.

- **Ensure Scalability and Expandability**

  The game will be structured in a modular way, enabling the addition of more levels and concepts as the player progresses. New programming concepts can be introduced through updates or expansions to the game.

- **Track Mastery and Progress**

  Implement a leaderboard that tracks players' overall mastery of programming concepts throughout the game. This feature will allow players to see how well they are mastering the material compared to others, encouraging continued learning and improvement.

Project Deliverables

- **Game Design Document (GDD)**: A comprehensive document detailing the game's objectives, mechanics, level structure, and user interface design.
- **Working Prototype**: A playable version of the game that includes at least one completed level with functional tile-based coding mechanics, user interface, and correct integration of programming concepts.
- **Concept Scenarios**: A series of levels and challenges focusing on core programming concepts (variables, data types, loops, functions, etc.), each offering progressively complex problems for the player to solve.
- **User Interface Design**: An intuitive, easy-to-navigate interface that helps players focus on learning, featuring clear visual cues for coding input and feedback.
- **Real-Time Feedback System**: A mechanism that provides immediate feedback on players' code choices, helping them learn from mistakes and improve their understanding of programming concepts.
- **Mastery Leaderboard**: A feature that tracks and ranks players based on their overall mastery of programming concepts, encouraging continued learning and improvement.
- **Game Testing and Debugging**: Thorough testing to ensure all game mechanics, coding challenges, and feedback systems work correctly and efficiently.
- **Game Documentation**: Detailed instructions on how to play the game, including explanations of each programming concept and the rules for completing levels.

Project Scope

Code Conquest: The Adventure Game is a mobile-based, tile-based game designed to teach programming concepts through interactive coding challenges. The game focuses on providing an engaging, educational experience where players solve problems related to key programming concepts such as variables, data types, control structures, functions, and more.

Features and Functions

- **Interactive Coding Challenges**: Players will solve programming problems related to different concepts such as variables, data types, control structures, functions, and more.
- **Progressive Learning Levels**: The game will feature multiple levels, each focusing on a specific programming concept. These levels will progressively introduce new ways to apply each concept, starting with basic usage in Level 1 and gradually increasing in complexity. Each concept is revisited in varying contexts across different levels, reinforcing the player's understanding and ensuring mastery through continuous practice and problem-solving.
- **Tile-Based Gameplay**: The player interacts with a tile-based game interface where each action corresponds to a specific code-related challenge.
- **Real-Time Feedback**: Players will receive feedback on their code, guiding them on errors and corrections after each input.
- **Concept-Specific Scenarios**: Each scenario will target a specific programming concept and be structured in increasing difficulty.
- **Mobile-Friendly Interface**: The game will be designed for mobile platforms, ensuring accessibility and usability on the go.
- **Player Progression**: Players will advance through levels by successfully writing and debugging code to defeat enemies and progress to new challenges.
- **Mastery Leaderboard**: The game will feature a leaderboard that ranks players based on their overall mastery of programming concepts. It will be used to measure and showcase players' learning progress, motivating them to continue improving their skills and knowledge.

Project Constraints

- **Modular System Development**

  Creating the levels (scenarios) for each concept may take longer than expected, as the modular system needed to organize these levels is not fully developed yet.

- **Authentication Limitations**

  The Godot extension for Supabase and OAuth services (for social logins like Google or Facebook) are not currently available. This means we cannot use these services for user authentication at the moment. As an alternative, we will use Supabase's built-in authentication method, but implementing OAuth in the future will take time.

- **Cross-Platform Availability**

  While the game is currently being developed for mobile platforms, there is potential for the game to be expanded to other platforms in the future. This will depend on the progress made with the mobile version and its compatibility with other systems.

- **Human Resources**

  There may be limitations in the development team, such as a lack of expertise in specific areas like design or specialized programming. In such cases, external hires will be considered, but this will also be limited by the project's budget.

Model for Study

Model for Study: Bookworm Adventures Deluxe

Bookworm Adventures Deluxe is an educational word-based puzzle game developed and published by **PopCap Games**. Released in 2006, the game is a spin-off of the original Bookworm game and combines elements of word formation with turn-based combat. It is designed to both entertain and educate, primarily enhancing a player's vocabulary, spelling, and critical thinking.

Core Gameplay

Players take on the role of Lex the Bookworm, who battles mythological and fictional enemies by forming words from a random grid of letters. The longer and more complex the word, the more damage it deals to the enemy. Players are rewarded for using rarer letters and longer combinations, adding a layer of strategy to the gameplay.

Educational Value

Bookworm Adventures promotes literacy by encouraging players to think critically about word structure, vocabulary, and spelling. It gamifies learning through a mix of challenge and reward systems, making it appealing to both younger audiences and casual gamers looking for mental stimulation.

System Design Elements

The game includes RPG-like mechanics such as health bars, power-ups, and enemy types with different effects. It is single-player, level-based, and designed to progress in difficulty. The game does not rely on multiplayer elements or online connectivity, making it accessible and self-contained.

Influence on Code Conquest

Code Conquest takes inspiration from Bookworm Adventures in the way it blends education and gameplay. Instead of word formation, Code Conquest focuses on teaching programming fundamentals through interactive, battle-based scenarios. Like Bookworm Adventures, it aims to make learning fun by embedding it within a game loop that rewards knowledge and strategy.

Statement of the Problem

Many beginner programming students, whether enrolled in schools, universities, or self-learning—struggle not only with understanding core programming concepts like variables, data types, conditionals, and loops, but also with writing code itself. The process of translating logic into correct syntax can feel overwhelming, especially when learning through lectures, textbooks, or static tutorials.

Common Challenges Faced by Learners

- Concepts are difficult to understand without visual, interactive examples.
- Students lack opportunities to practice coding in a meaningful or enjoyable way.
- Writing code from scratch feels intimidating, especially when mistakes lead to confusion rather than learning.
- Traditional teaching methods can feel dull or overly technical, reducing motivation.
- Delayed feedback and lack of progress tracking can make learning feel directionless.

These issues often result in poor performance, low confidence, and even dropping out of programming-related courses. Self-taught learners face the same challenges without structured guidance or engaging tools.

Code Conquest: Addressing These Issues Through Gameplay

Code Conquest: The Adventure Game is designed to turn the process of learning to code into an engaging, interactive experience. Through a turn-based, tile-based system, players assemble real code to solve progressively challenging programming scenarios. The game emphasizes both concept understanding and hands-on coding practice by offering:

Game Features	Educational Challenges Addressed	How It Helps Learners
Tile-based Code Assembly	Writing code from scratch is intimidating	Players build logic using tiles, reducing syntax-related intimidation while still teaching structure.
Concept Scenario Levels	Concepts feel disconnected or too abstract	Each level introduces and reinforces one concept in a clear, focused way.
Delayed-but-Interactive Feedback	Feedback in traditional settings is too slow or unclear	Code is evaluated after submission, with clear results and guidance encouraging self-correction.
Mastery Tracking System	Students don't know what they've actually learned	Tracks progress and concept mastery across levels to reinforce retention.
Turn-based Battle Mechanics	Lessons feel dry or overly academic	Engaging combat rewards correct logic, turning problem-solving into gameplay.
Skin Rewards and Unlockables	Learners lose interest easily without incentives	Visual rewards and level progression keep motivation high without distracting from learning.
Mobile-first Design	Not all learners have access to desktops	Optimized for mobile to make learning accessible on most devices.
Cloud-synced Progress (Supabase)	No continuity across sessions or devices	Player data is saved, so learners can continue anytime, anywhere.

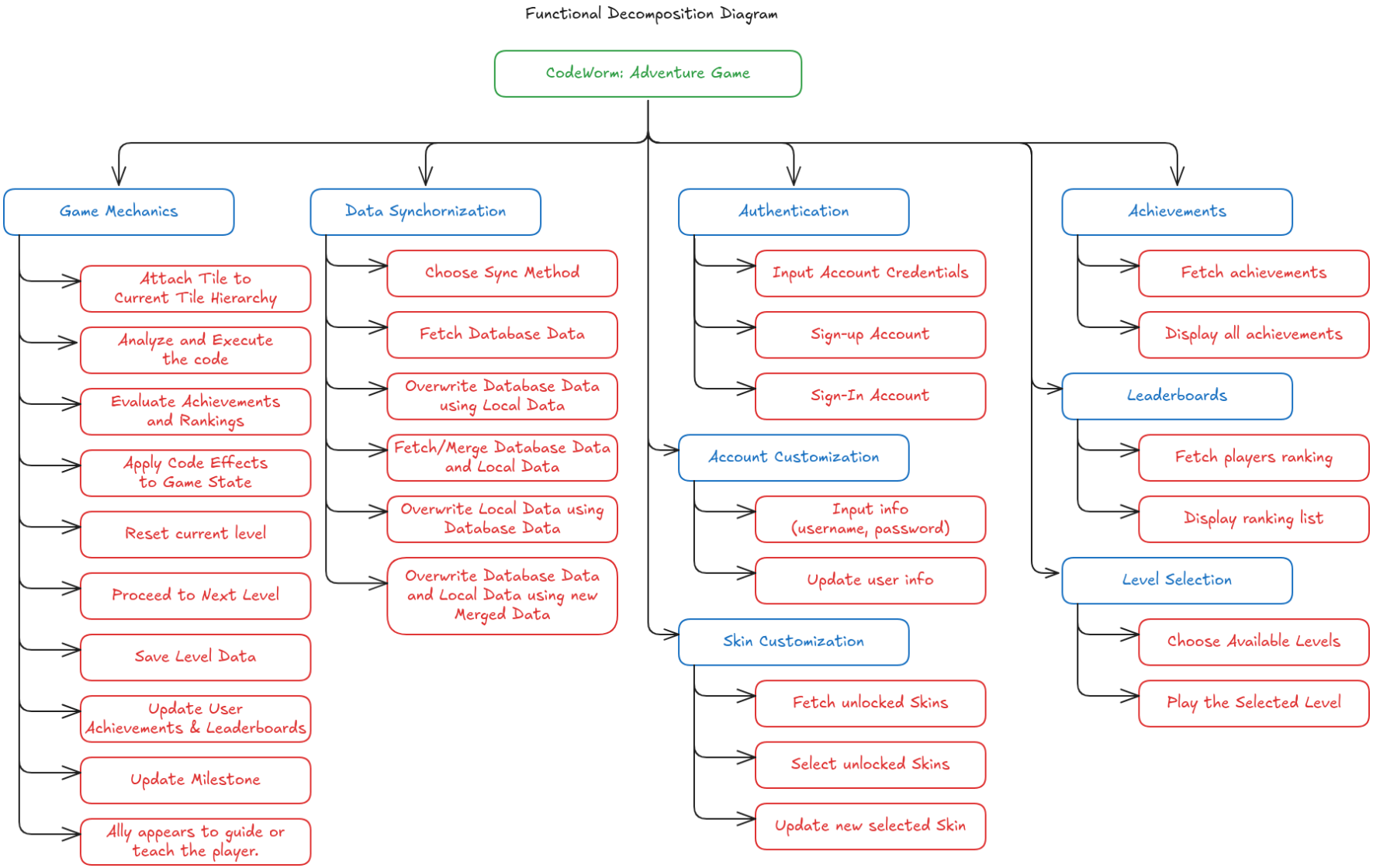
By gamifying code creation and practice, *Code Conquest* helps students move from passive understanding to active skill-building.

Why Code Conquest is Considered a System

Modern educational games can function as complex systems due to their deep integration with both hardware and software layers. Like operating systems or development environments, they involve structured processes such as dynamic resource allocation, system-level dependencies, and interactive feedback loops. *Code Conquest: The Adventure Game* follows this approach—combining structured gameplay, educational logic, and backend integration to achieve its learning goals.

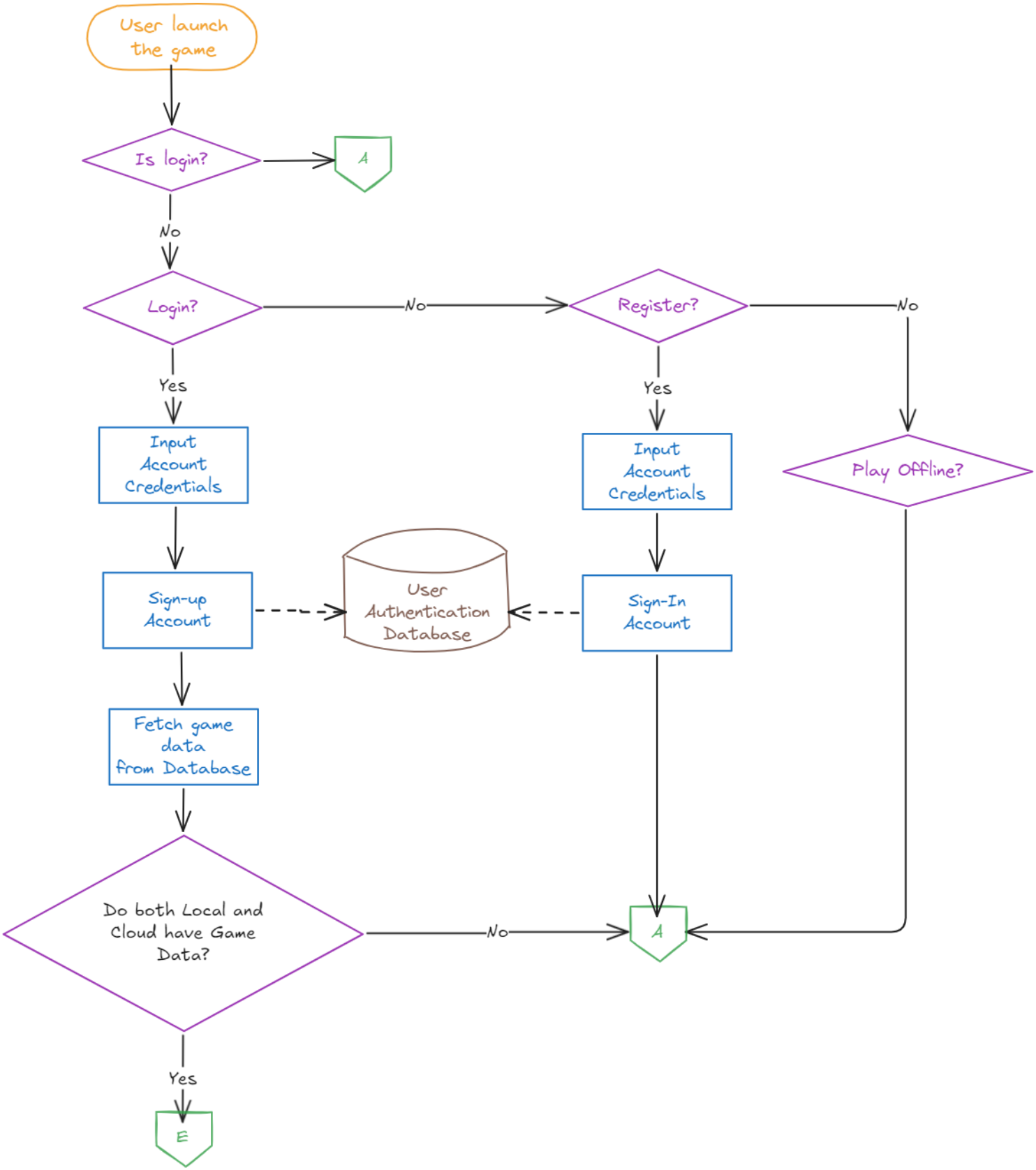
Proposed System

Functional Decomposition Diagram

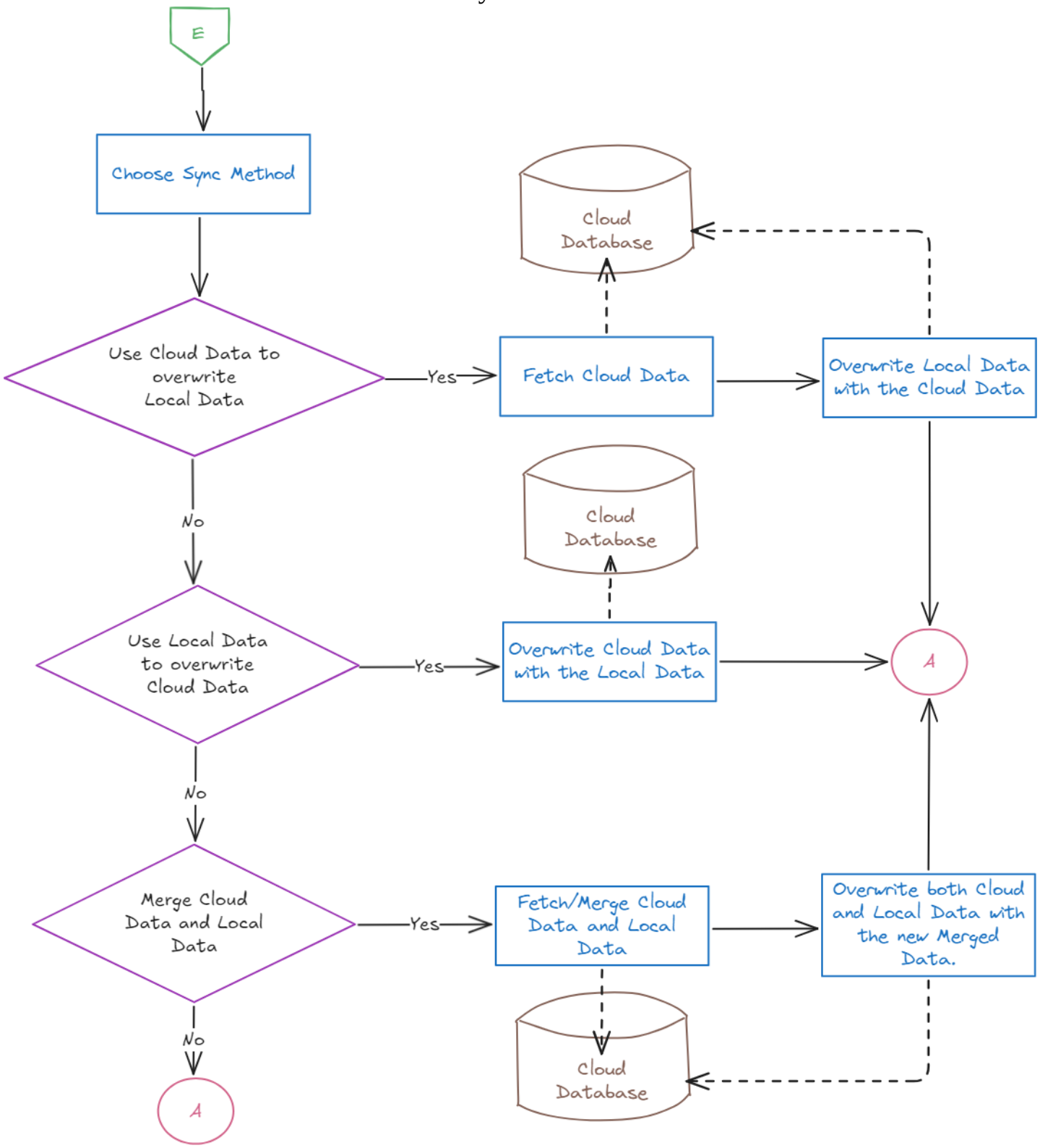


System Flowchart

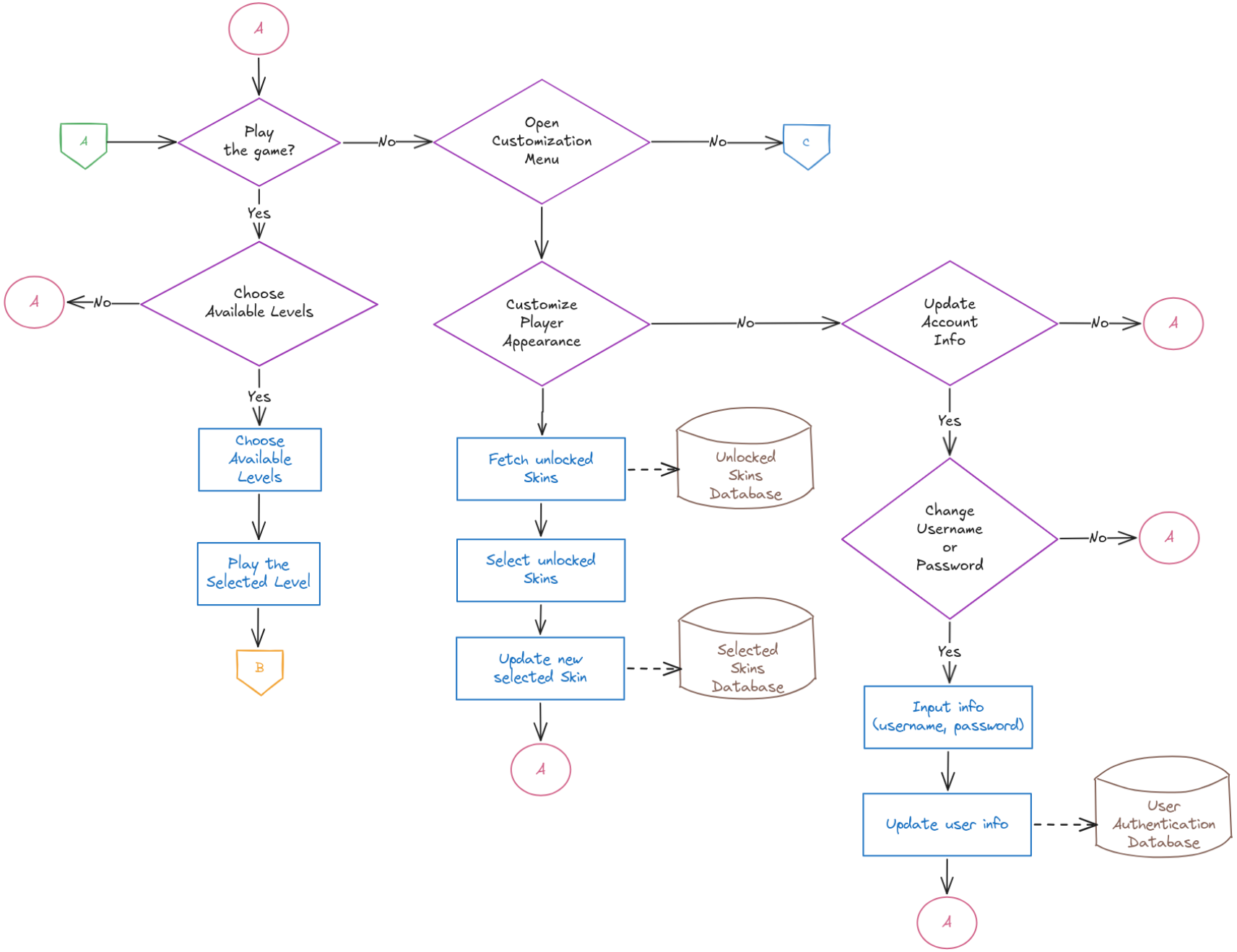
User Authentication



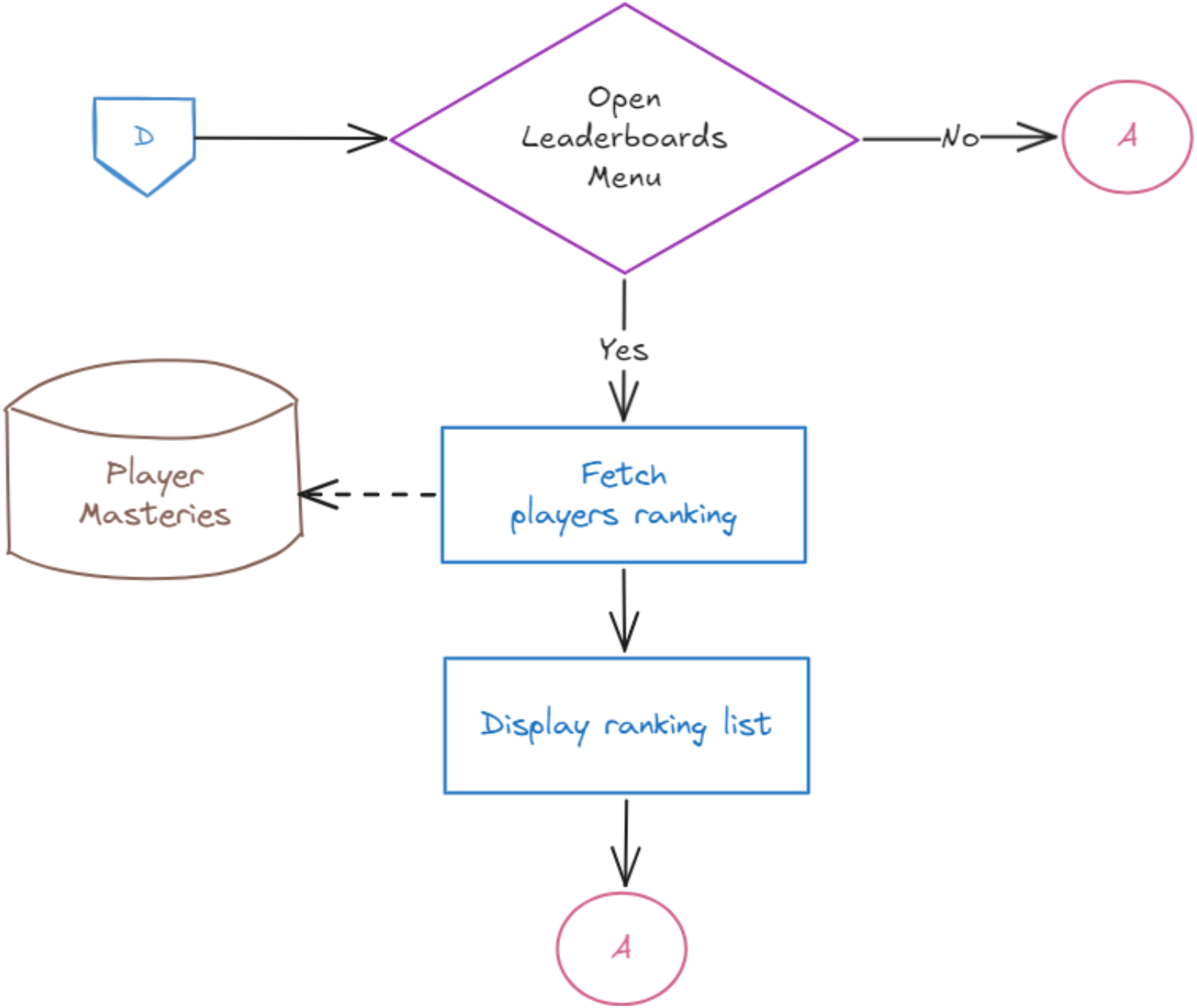
Data Synchronization



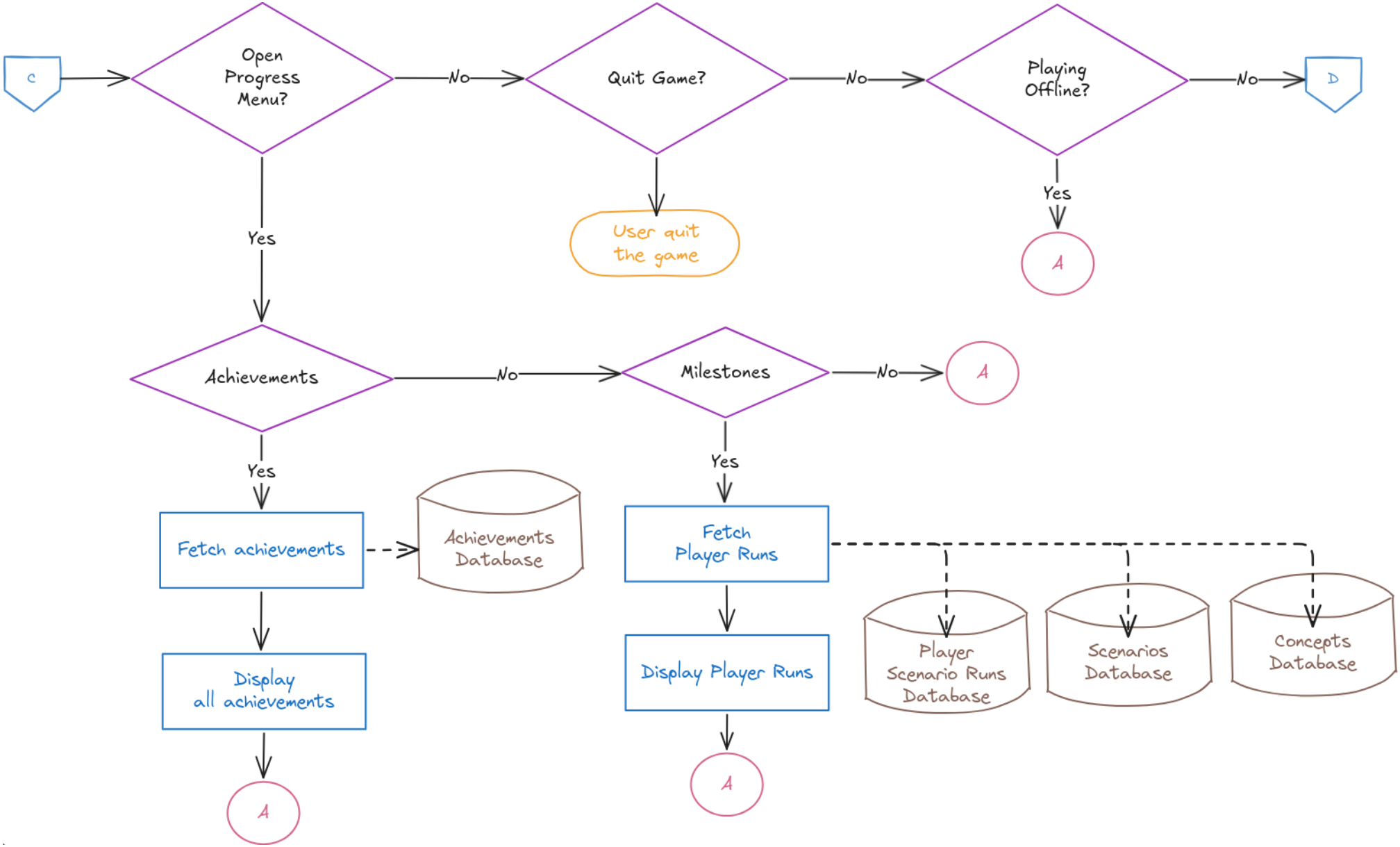
Play and Customization Menu



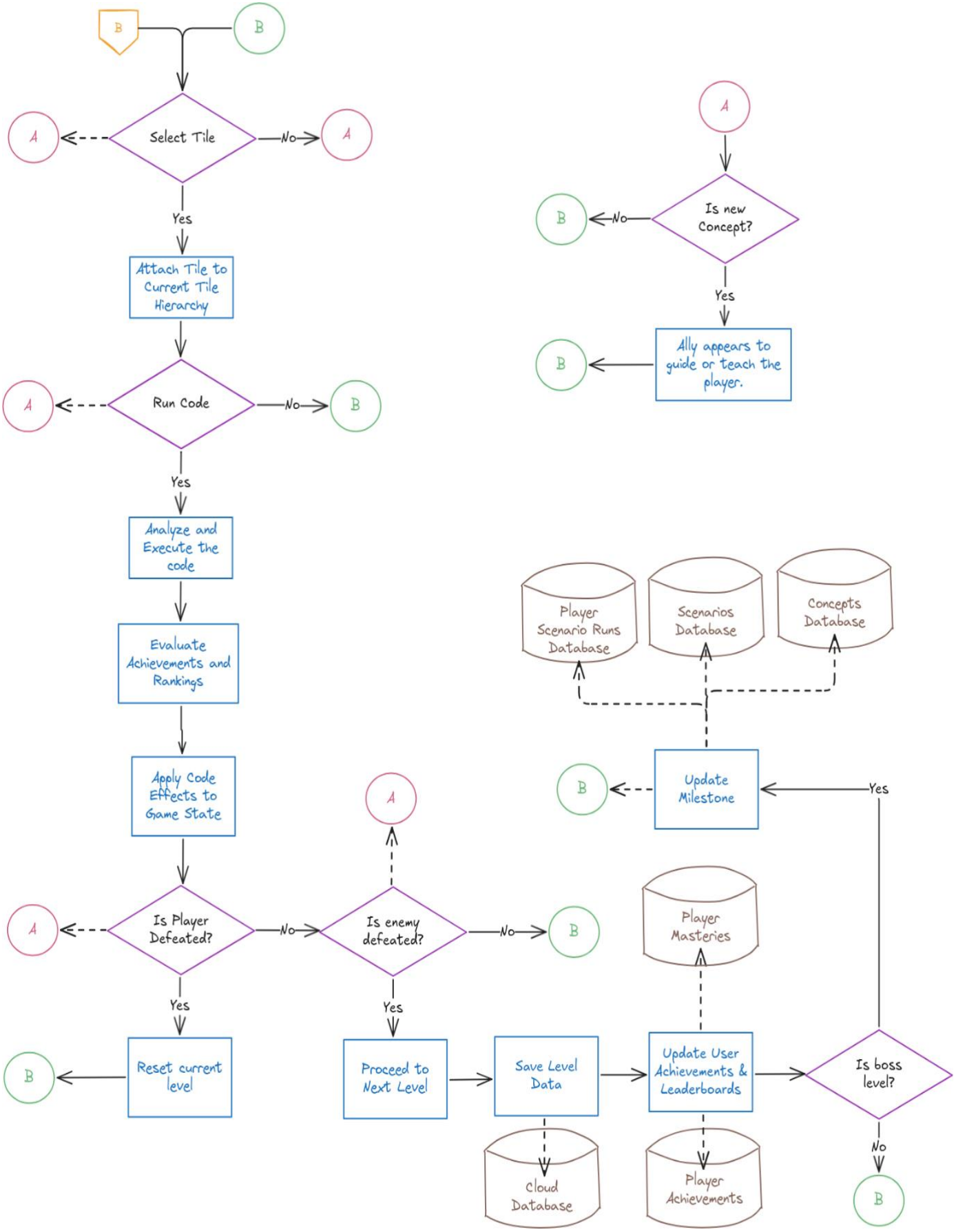
Leaderboards



Progress-Quit

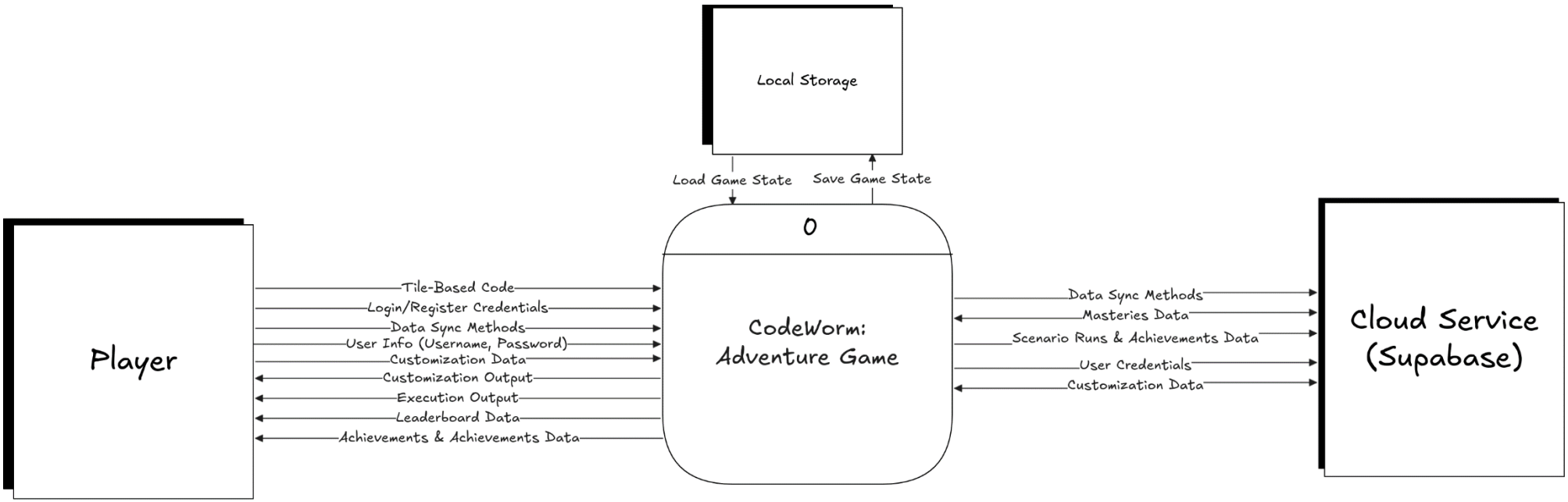


Gameplay

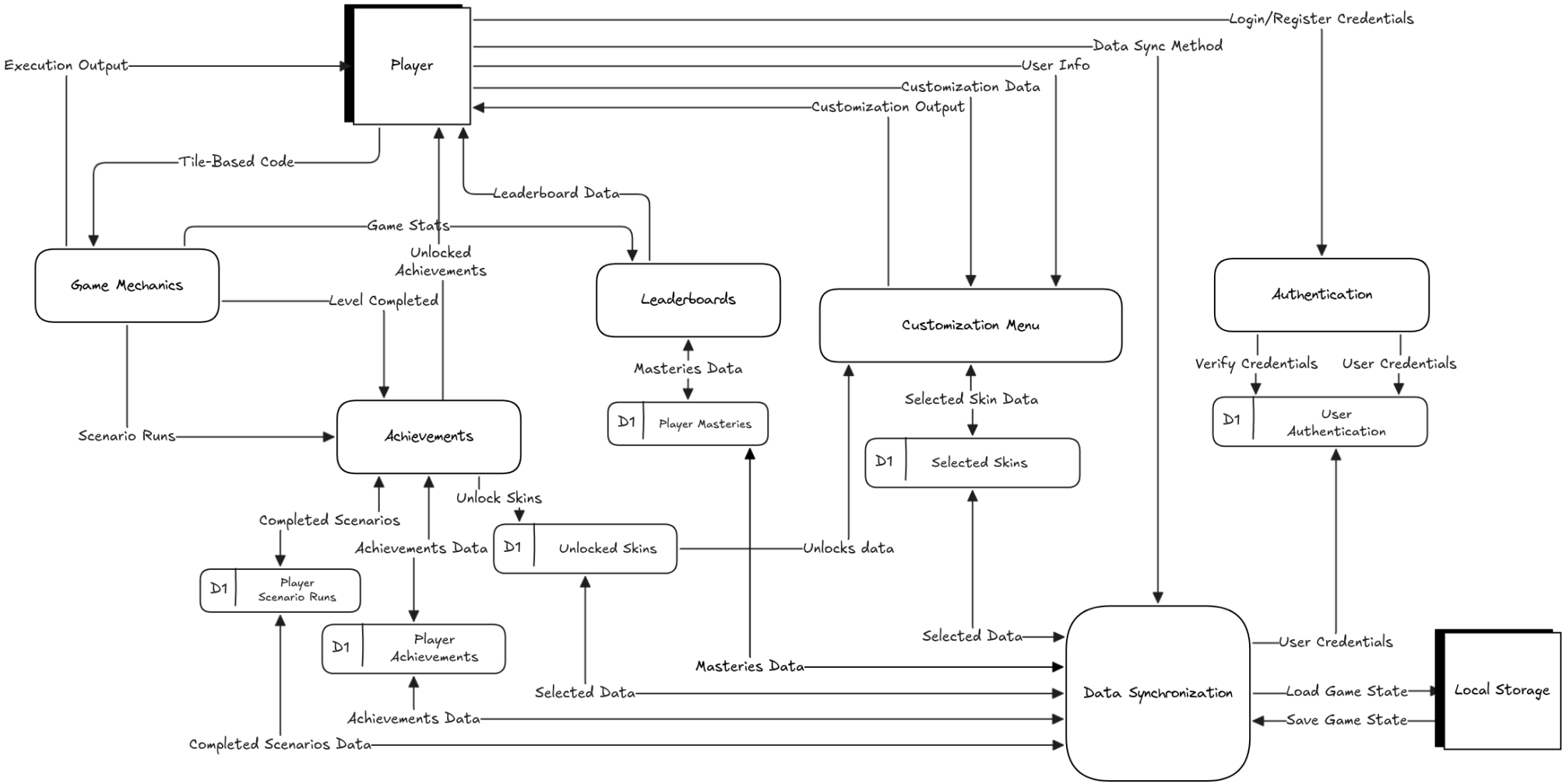

B
B
Select Tile
A
No
A
Yes
Attach Tile to Current Tile Hierarchy
Run Code
A
No
B
Yes
Analyze and Execute the code
Evaluate Achievements and Rankings
Apply Code Effects to Game State
Is Player Defeated?
A
No
Is enemy defeated?
A
No
B
Yes
Yes
B
Reset current level
Proceed to Next Level
Save Level Data
Cloud Database
Update User Achievements & Leaderboards
Player Masteries
Player Achievements
Is boss level?
Yes
No
B
B
Update Milestone
Player Scenario Runs Database
Scenarios Database
Concepts Database
A
B
No
Is new Concept?
Yes
B
Ally appears to guide or teach the player.

Data Flow Diagram

DFD-0

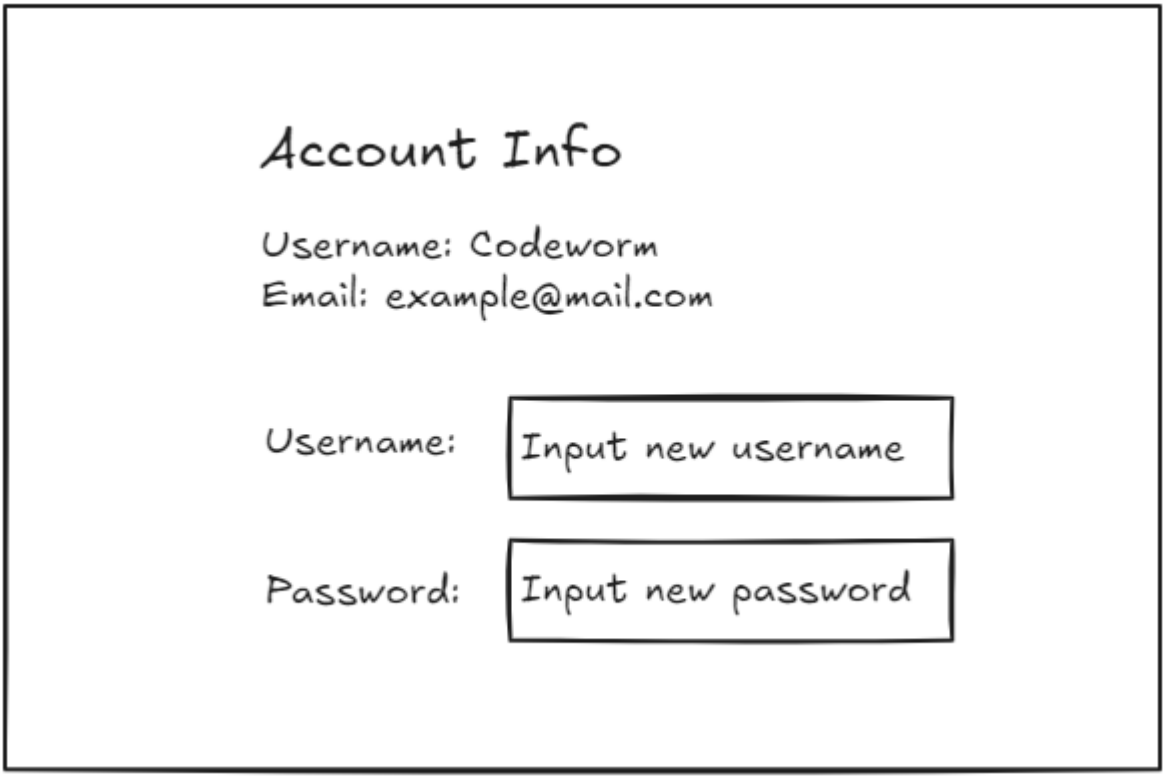


DFD-detailed



Prototypes


Code Conquest
The Adventure Game
Player Appearance
Account Profile


Account Info
Username: Codeworm
Email: example@mail.com
Username:
Input new username
Password:
Input new password

We found local progress and cloud progress.

Which one do you want to keep?

Local Data

Cloud Data

Merge Local and Cloud Data

Code Conquest
The Adventure Game

Login

Register

Offline Mode

Code Conquest
The Adventure Game

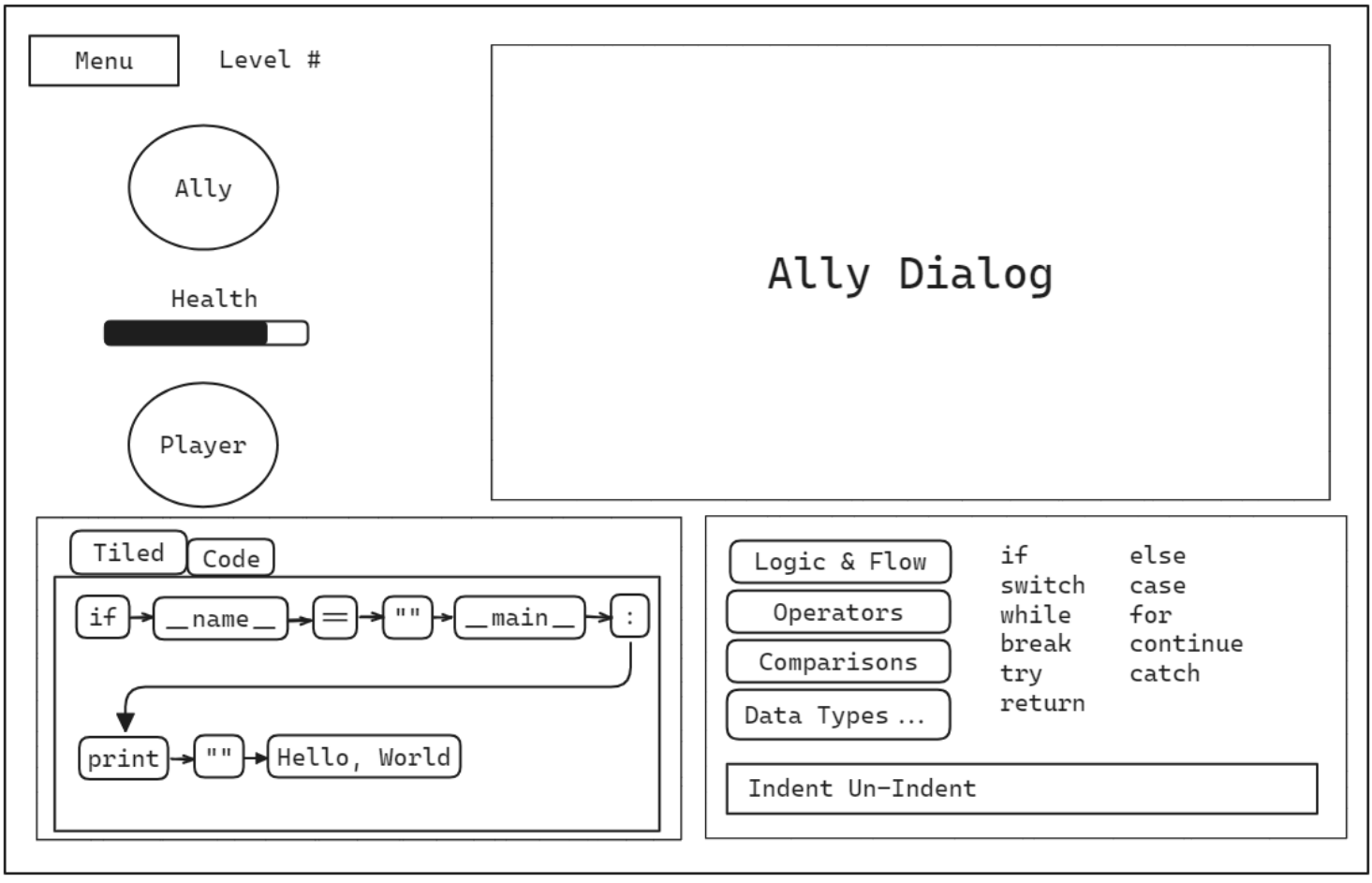
Play

Customization

Progress Menu

Leaderboards

Quit Game



Menu

Level #

Ally

Ally Dialog

Health

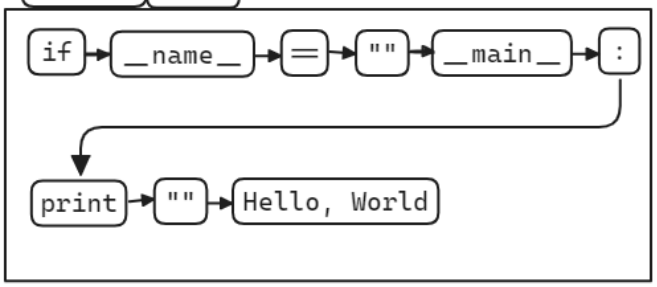
Health

Player

Background

Enemy

Tiled | Code



Logic & Flow

Operators

Comparisons

Data Types ...

if else
switch case
while for
break continue
try catch
return

Indent Un-Indent

Menu

Level #

Background

Health

Health

Player

Enemy

Tiled | Code

```
1 if __name__ == "__main__":
2     print("Hello, World!")
```

Logic & Flow

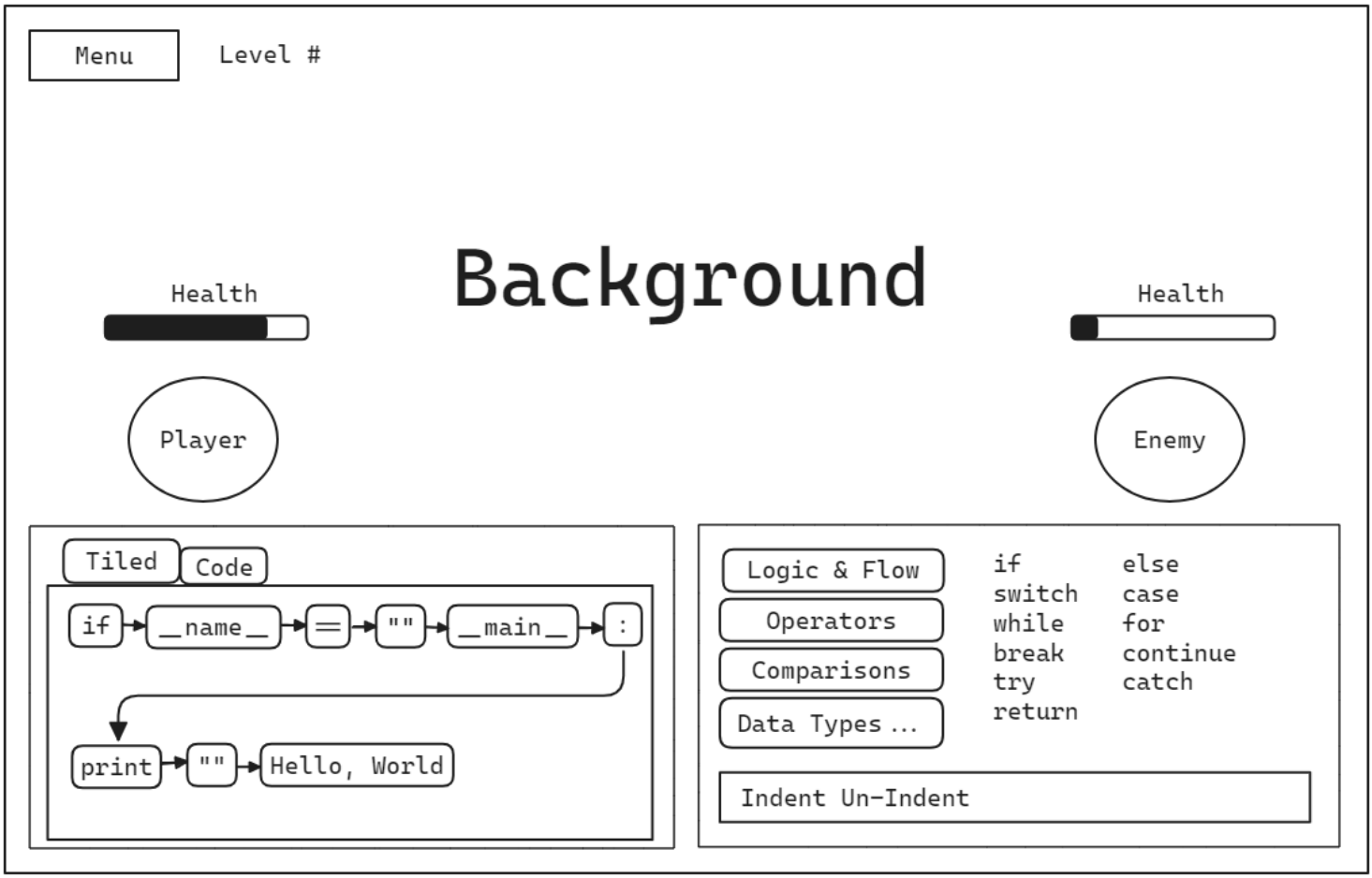
Operators

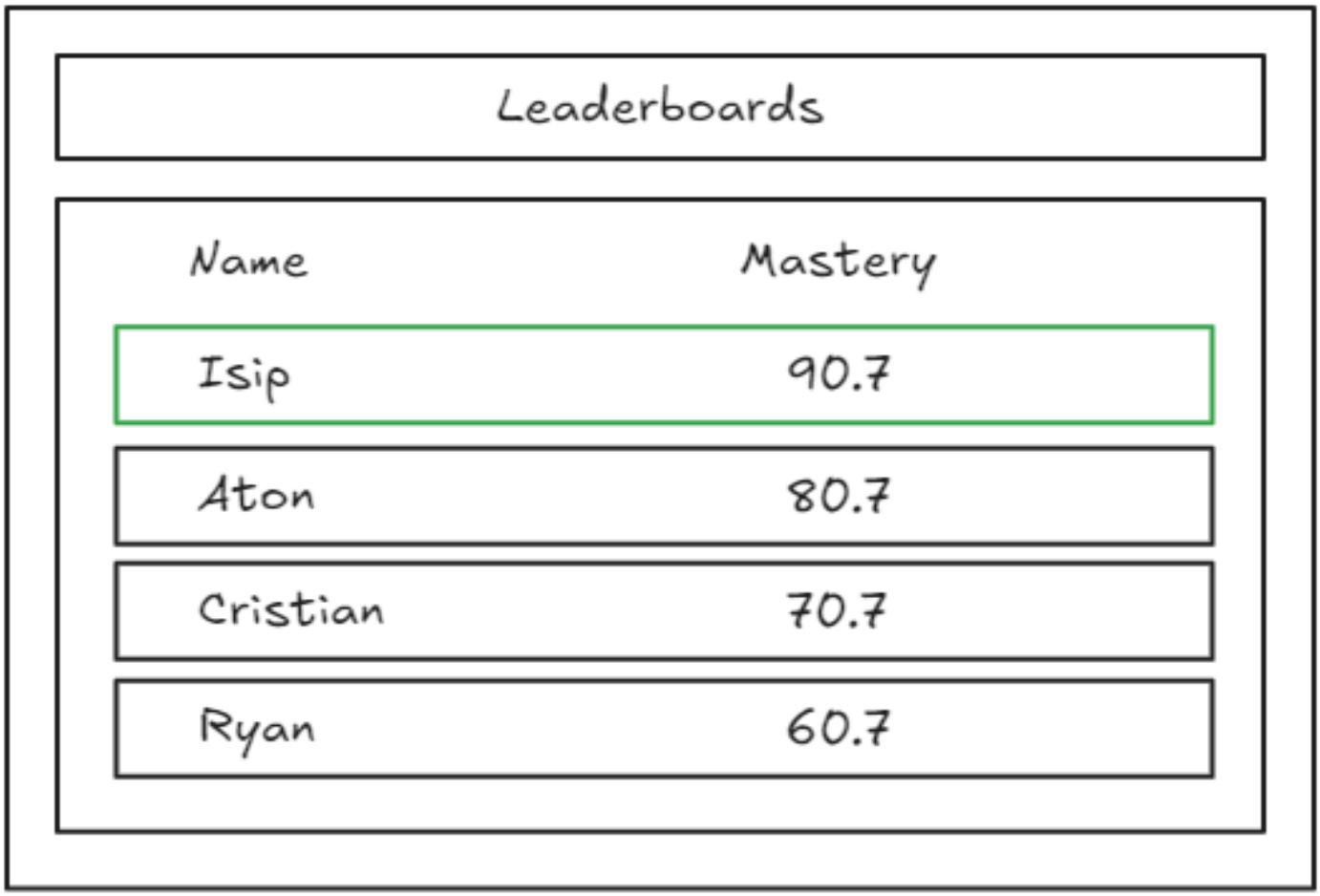
Comparisons

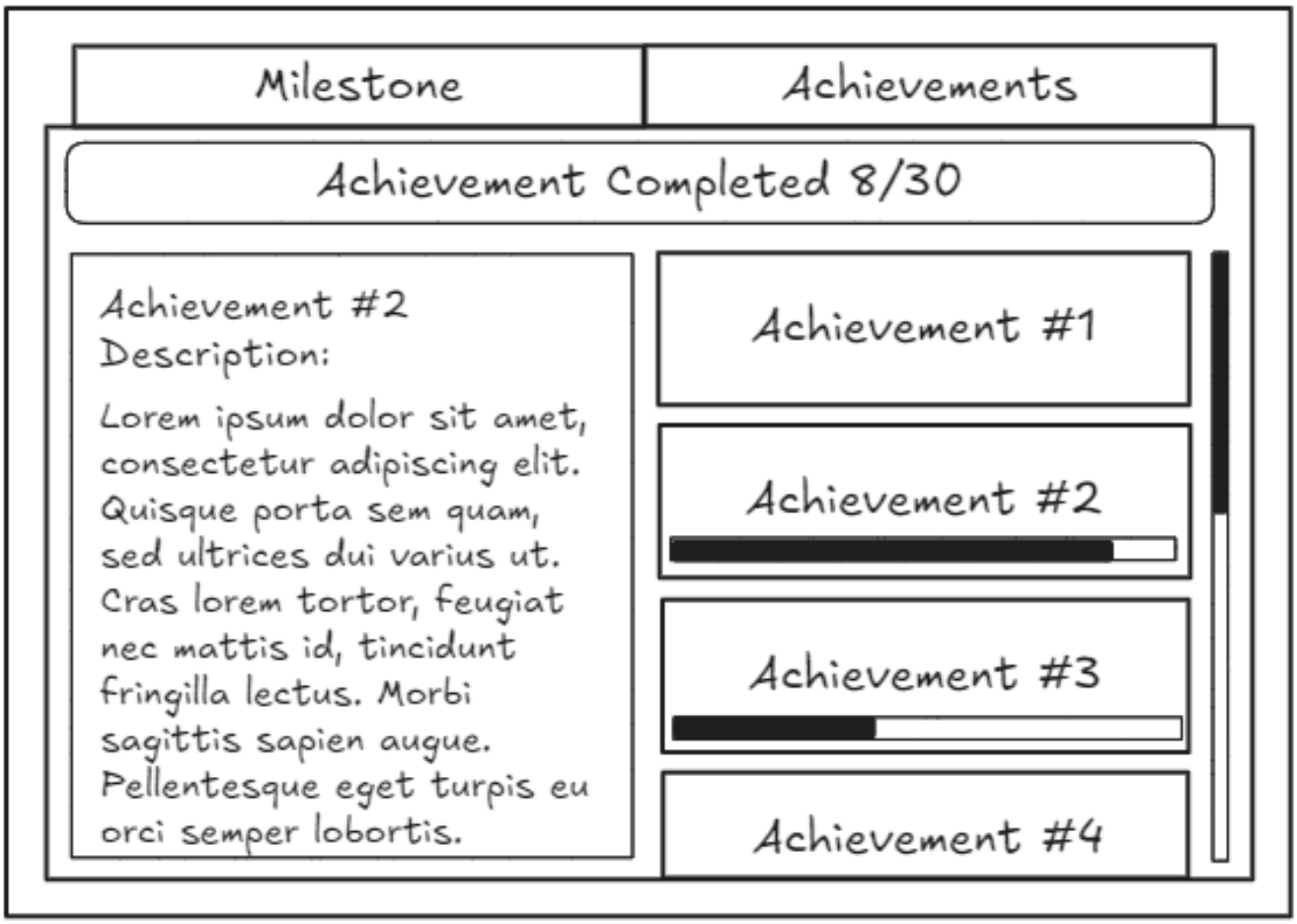
Data Types ...

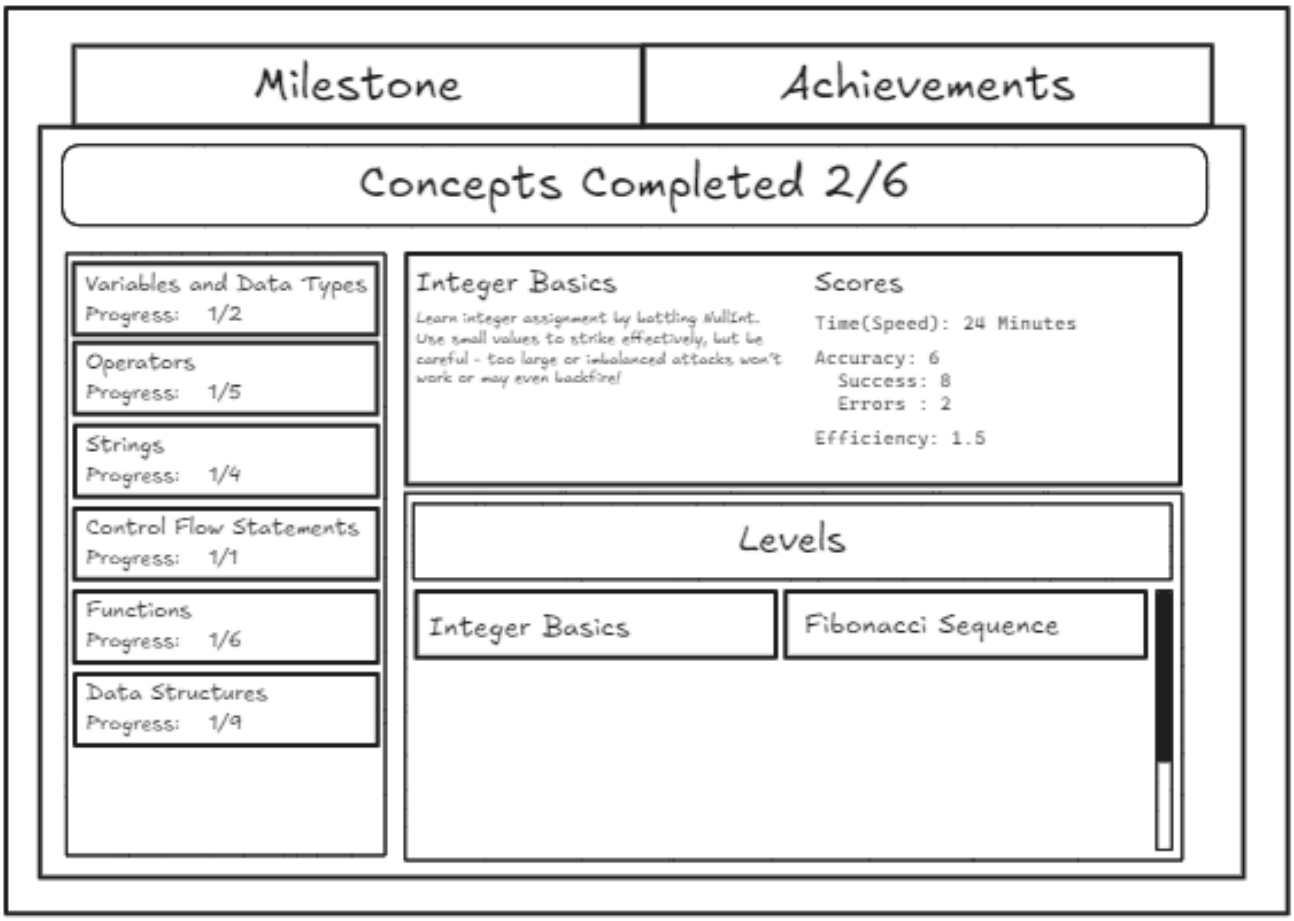
if else
switch case
while for
break continue
try catch
return

Indent Un-Indent


Menu
Level #
Background
Health
Health
Player
Enemy
Tiled
Code
if
__name__
==
""
__main__
:
print
""
Hello, World
Logic & Flow
Operators
Comparisons
Data Types ...
if
else
switch
case
while
for
break
continue
try
catch
return
Indent Un-Indent


Leaderboards
Name
Mastery
Isip
90.7
Aton
80.7
Cristian
70.7
Ryan
60.7


Milestone
Achievements
Achievement Completed 8/30
Achievement #2
Description:
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Quisque porta sem quam, sed ultrices dui varius ut. Cras lorem tortor, feugiat nec mattis id, tincidunt fringilla lectus. Morbi sagittis sapien augue. Pellentesque eget turpis eu orci semper lobortis.
Achievement #1
Achievement #2
Achievement #3
Achievement #4


Milestone
Achievements
Concepts Completed 2/6
Variables and Data Types
Progress: 1/2
Operators
Progress: 1/5
Strings
Progress: 1/4
Control Flow Statements
Progress: 1/1
Functions
Progress: 1/6
Data Structures
Progress: 1/9
Integer Basics
Learn integer assignment by battling NullInt. Use small values to strike effectively, but be careful - too large or imbalanced attacks won't work or may even backfire!
Scores
Time(Speed): 24 Minutes
Accuracy: 6
Success: 8
Errors : 2
Efficiency: 1.5
Levels
Integer Basics
Fibonacci Sequence

Cost and Benefit Analysis

This cost and benefit analysis provide an estimated budget for game development, covering technical specifications, game assets, programming, personnel expenses, and miscellaneous costs such as electricity and internet. Depending on whether the project is developed solo or with freelance assistance, the total cost ranges from ₱11,150 to ₱40,460, ensuring resources are allocated efficiently for a smooth development process.

DEVELOPMENT COST

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.

PERSONNEL COST

Expense Category	Monthly Salary	Description
Game Programmer	₱15,000	Handles coding, implementing mechanics, and ensuring functionality.
2D/3D Artist	₱6,000	If hiring a 2D artist for characters, backgrounds, UI, and animations.
Music & Sound Effects	₱1,500	If hiring a freelancer, otherwise, use free or cheap assets (e.g., OpenGameArt, Itch.io).
Game Testing	₱1,000	If hiring testers to find bugs and issues.

OTHER MISCELLANEOUS COST

Expense Category	Estimated Cost (PESO)	Description
Electricity and Utilities	₱5,000	The cost of powering workstations, servers, and other equipment during development.
Internet and Utilities	₱2,500	High-speed internet for collaboration, file sharing, and online testing, as well as communication tools like Zoom or Slack.

TOTAL ESTIMATED DEVELOPMENT COST

If solo or mostly in-house: **₱11,150**

If with freelance help: **₱40,460**

Benefits from the system

The system will bring several valuable benefits, including improved accessibility to engaging and interactive gameplay, enhanced user experience through well-designed assets and mechanics, and potential monetization opportunities if published successfully. Additionally, it fosters learning and creativity, supports community engagement, and allows for future scalability with cloud integration, making it adaptable for growth and new features.

- **Enhanced Accessibility** – Ensures users can easily interact with the game, whether on mobile or desktop.
- **Engaging User Experience** – Well-designed assets, animations, and mechanics create an immersive and enjoyable gameplay experience.
- **Learning and Skill Development** – Encourages logical thinking, problem-solving, and creativity, especially if incorporating educational aspects.
- **Community Engagement** – Allows users to connect and interact, fostering a dedicated player base.
- **Scalability and Future Growth** – Cloud integration enables easy expansion, updates, and additional features over time.
- **Cross-Platform Compatibility** – Optimized for publishing on different platforms, increasing potential reach.
- **Customization and Flexibility** – Allows room for modifying gameplay elements or introducing new mechanics based on user feedback.

Appendix

A

- **Accuracy**: A score based on correct lines minus errors (higher = better).
- **Achievements**: Unlockable rewards for completing challenges.
- **Allies**: NPCs that introduce new programming concepts.
- **Analyzer**: A system that checks code syntax after 1.5 seconds of inactivity.
- **Authentication**: Secure player login/registration.

B

- **Battle Boosters**: Power-ups like resurrection or damage prevention.
- **Bosses**: Strong enemies requiring advanced problem-solving.

C

- **Code-Window**: The area where players connect tiles to write code.
- **Concept Mastery**: Tracks player proficiency in programming topics.
- **Concept Proficiency**: Average skill in a specific programming concept.

D

- **Data Sync**: Cloud-saved progress across devices.

E

- **Efficiency**: Score based on damage dealt per tile used (higher = better).
- **Enemies**: Opponents defeated via coding.
- **Entities**: Interactive characters (allies, enemies, bosses).
- **Exceptions (Invalid Code)**: Errors that trigger enemy attacks.

F

- **Fuzzy Finder**: A search system for quickly locating tiles.

G

- **Global Leaderboard**: Overall ranking based on mastery.
- **Grand Mastery**: Overall coding skill across all concepts.

H

- **HP (Health Points)**: Player/enemy health (0 HP = level reset).
- **Help System**: Provides hints and error messages.

I

- **Invalid Code**: Code that fails execution (triggers exceptions).

L

- **Leaderboards**: Ranks players by level, concept, or globally
- **Level Leaderboards**: Ranks players per level.

M

- **Mastery Scores**: Tracks player skill categorized as Concept and Overall Mastery, an average of Normalized Scores and Concept Proficiency, respectively.

N

- **Normalized Scores**: Performance scaled 0-100 (vs. best possible).

O

- **Output-Window**: Displays execution results and errors.
- **Overall Mastery**: Average of all Concept Proficiencies.

P

- **Player Profiles**: Tracks achievements, stats, and rankings.

R

- **Real-Time Error Messages**: Instant feedback on incorrect syntax.
- **Run Button**: Executes connected tiles as code.

S

- **Speed**: Time taken to complete a level (lower = better).
- **Story Context**: Narrative framing for levels.
- **Successful Code Execution**: Valid code that performs in-game actions.
- **Syntax Shield**: Booster that blocks damage from failed code.
- **Scenario**: Also known as a Level containing the usage and comprehension of the concept taught.

T

- **Tile Compression**: Merges tiles for faster coding after mastery.
- **Tile-Window**: Panel displaying available code tiles.
- **Turn-Based Gameplay**: Player acts first, then enemy.

V

- **Valid Code**: Correctly executed code with intended effects.

Data Dictionary

Name	Description	Attribute Name	Attribute Type	Sample	Location
Concept Primary Key	Unique identifier for concept	id	UUID	123e4567-e89b-12d3-a456-426614174000	public.concepts
Concept Name	Name of the programming concept	name	TEXT	Variables & Data Types	public.concepts
Concept Description	Detailed explanation of concept	description	TEXT	Basic variable declaration and data types	public.concepts
Scenario Primary Key	Unique identifier for scenario	id	UUID	123e4567-e89b-12d3-a456-426614174001	public.scenarios
Scenario Concept Foreign Key	Reference to associated concept	concept_id	UUID (FK)	123e4567-e89b-12d3-a456-426614174000	public.scenarios
Scenario Name	Name of the scenario/level	name	TEXT	Variable Basics	public.scenarios

Scenario Index	Order position of scenario	index	INTEGER	1	public.scenarios
Run Primary Key	Unique identifier for player run	id	UUID	123e4567-e89b-12d3-a456-426614174002	public.player_scenario_runs
Run User Foreign Key	Reference to player	user_id	UUID (FK)	123e4567-e89b-12d3-a456-426614174003	public.player_scenario_runs
Run Scenario Foreign Key	Reference to scenario	scenario_id	UUID (FK)	123e4567-e89b-12d3-a456-426614174001	public.player_scenario_runs
Run Speed	Completion time in seconds	speed_seconds	FLOAT	45.2	public.player_scenario_runs
Run Accuracy	Score based on correct lines	accuracy_score	INTEGER	95	public.player_scenario_runs
Run Efficiency	Score based on tiles used	efficiency_score	FLOAT	8.5	public.player_scenario_runs
Run First Completion	First time completion flag	is_first_completion	BOOLEAN	TRUE	public.player_scenario_runs
Run Completion Count	Times scenario completed	completion_count	INTEGER	3	public.player_scenario_runs
Run Completion Time	When scenario was completed	completed_at	TIMESTAMPTZ	2023-10-15 14:30:00+00	public.player_scenario_runs
Unlock User Foreign Key	Reference to player	user_id	UUID (FK)	123e4567-e89b-12d3-a456-426614174003	public.player_concept_unlocks
Unlock Concept Foreign Key	Reference to concept	concept_id	UUID (FK)	123e4567-e89b-12d3-a456-426614174000	public.player_concept_unlocks
Unlock Status	Whether concept is unlocked	is_unlocked	BOOLEAN	TRUE	public.player_concept_unlocks
Unlock Time	When concept was unlocked	unlocked_at	TIMESTAMPTZ	2023-10-15 14:25:00+00	public.player_concept_unlocks
Save User Foreign Key	Reference to player	user_id	UUID (FK)	123e4567-e89b-12d3-a456-426614174003	public.player_scenario_saves

Save Scenario Foreign Key	Reference to scenario	scenario_id	UUID (FK)	123e4567-e89b-12d3-a456-426614174001	public.player_scenario_saves
Save Data	JSON save state data	save_data	JSONB	{"tiles": ["var", "x", "=", "5"]}	public.player_scenario_saves
Save Update Time	Last save update time	updated_at	TIMESTAMPTZ	2023-10-15 14:35:00+00	public.player_scenario_saves
Skin Primary Key	Unique identifier for skin	id	UUID	123e4567-e89b-12d3-a456-426614174004	public.skins
Skin Identifier	Unique skin identifier	identifier	TEXT	"python_expert"	public.skins
Player Skin User Foreign Key	Reference to player	user_id	UUID (FK)	123e4567-e89b-12d3-a456-426614174003	public.player_skins
Player Skin Foreign Key	Reference to skin	skin_id	UUID (FK)	123e4567-e89b-12d3-a456-426614174004	public.player_skins
Player Skin Unlock Time	When skin was unlocked	unlocked_at	TIMESTAMPTZ	2023-10-15 14:40:00+00	public.player_skins
Selected Skin User Foreign Key	Reference to player	user_id	UUID (FK)	123e4567-e89b-12d3-a456-426614174003	public.player_selected_skin
Selected Skin Foreign Key	Reference to selected skin	skin_id	UUID (FK)	123e4567-e89b-12d3-a456-426614174004	public.player_selected_skin
Selected Skin Time	When skin was selected	selected_at	TIMESTAMPTZ	2023-10-15 14:45:00+00	public.player_selected_skin
Achievement Primary Key	Unique identifier for achievement	id	UUID	123e4567-e89b-12d3-a456-426614174005	public.achievements
Achievement Name	Name of achievement	name	TEXT	First Program	public.achievements
Achievement Description	Description of achievement	description	TEXT	Completed your first program	public.achievements
Player Achievement User Foreign Key	Reference to player	user_id	UUID (FK)	123e4567-e89b-12d3-a456-426614174003	public.player_achievements

Player Achievement Foreign Key	Reference to achievement	achievement_id	UUID (FK)	123e4567-e89b-12d3-a456-426614174005	public.player_achievements
Player Achievement Unlock Time	When achievement was unlocked	unlocked_at	TIMESTAMPTZ	2023-10-15 14:50:00+00	public.player_achievements
Proficiency User Foreign Key	Reference to player	user_id	UUID (FK)	123e4567-e89b-12d3-a456-426614174003	public.player_concept_proficiencies
Proficiency Concept Foreign Key	Reference to concept	concept_id	UUID (FK)	123e4567-e89b-12d3-a456-426614174000	public.player_concept_proficiencies
Proficiency Score	Player's proficiency score	proficiency	FLOAT	85.5	public.player_concept_proficiencies
Proficiency Update Time	Last proficiency update	last_updated	TIMESTAMPTZ	2023-10-15 14:55:00+00	public.player_concept_proficiencies
Mastery User Foreign Key	Reference to player	user_id	UUID (FK)	123e4567-e89b-12d3-a456-426614174003	public.player_masteries
Mastery Score	Player's overall mastery	mastery	FLOAT	78.3	public.player_masteries
Mastery Update Time	Last mastery update	last_updated	TIMESTAMPTZ	2023-10-15 15:00:00+00	public.player_masteries
Best Score Scenario Foreign Key	Reference to scenario	scenario_id	UUID (FK)	123e4567-e89b-12d3-a456-426614174001	public.scenario_best_scores
Best Speed Score	Fastest completion time	speed_seconds	FLOAT	30.5	public.scenario_best_scores
Best Accuracy Score	Highest accuracy achieved	accuracy_score	INTEGER	100	public.scenario_best_scores
Best Efficiency Score	Most efficient solution	efficiency_score	FLOAT	10.0	public.scenario_best_scores
Best Score Update Time	Last record update	updated_at	TIMESTAMPTZ	2023-10-15 15:05:00+00	public.scenario_best_scores

Group Picture

Ryan Pantua

C. Perez St. Tonsuya, Malabon City
09098868332
Cambelryan5@gmail.com

PROFESSIONAL OBJECTIVE:

Seeking for a part time job for, so I can pay my expenses. Therefore, at the same time gaining experience and hone my communication skills.

EDUCATION:

College	**Global Reciprocal Colleges - Currently** Bachelor of Science in Information Technology
Senior High School	**Arellano University Jose Rizal Campus - 2021-2023** Information and Communication Technology Gov. Pascual Avenue, Malabon City
Junior High School	**Southville 8B National High School – 2017-2020** San Isidro Rodriguez Montalban Rizal
Elementary	**Southville 8 Elementary School– 2011-2017** San Isidro Rodriguez Montalban Rizal

WORKING EXPERIENCE:

None

SKILLS:

- **Communication**
- **motivated**
- **Problem-solving**

SEMINARS / WORKSHOPS ATTENDED:

GK College of Business, Arts, and Technology - i did a Work Immersion seminar there when i was a Senior High School student.

I hereby certify that all the information above is true and correct based on my best knowledge and honesty.

Aton, Kimpee

Student

Enthusiastic and dedicated Information Technology student with a passion for technology and innovation. Eager to gain hands-on experience and apply classroom knowledge to real-world challenges. Known for being a fast learner, team player, and adaptable individual with strong problem-solving and analytical skills.

CONTACT

k1mpeeaton06@gmail.com

https://kimpeea.github.io/FinalProject/

EDUCATION

Global Reciprocal Colleges
Bachelor of Information Technology
2nd Year
(2023-2025)

Bagong Barrio Senior High School
(2022-2023)

Electron College of Technical Education
(2020-2021)

Bagong Barrio National
High School
(2016-2020)

SKILLS

Collaborative Leadership Creative Direction
Adaptability & Open-mindedness
Analytical Observation

WORK EXPERIENCE

N/A

Isip, Jerick Rupert D.

Self-Taught Developer

Self-taught and passionate about creating interactive digital experiences through games and software. Looking to contribute to real-world projects while continuing to grow in design, problem-solving, and development.

79 Mabalacat St 6th Ave
Caloocan City

Contact

09957692367

Primary Email
nexushastaken@gmail.com
Secondary Email
jerickrupertisip@gmail.com

Socials

Facebook Link
https://web.facebook.com/isip.jerick.rupert

Github Profile
https://github.com/NexushasTaken

Discord
nexus.null

Skills and Technologies

Comfortable with:

- C/C++, Python, C3
- Linux (ArchLinux), Windows
- Git

Familiar with:

- HTML, CSS, Javascript
- C3, Java, Lua

Education

Global Reciprocal Colleges
Bachelor of Information Technology
(2023 - Present)

Electron College of Technical Education
Information and Computer Technology

Maria Clara High School

Cayetano Arellano Elementary School

SALIBIO, CRISTIAN PAUL L.

170. Gen Evangelista St. Bagong Barrio Caloocan City
09271850702
cristiansalibio7@gmail.co

OBJECTIVE

As a student, I pride myself on being a responsible and organized individual. I am enthusiastic about embarking on my first professional experience and eager to contribute to a workplace environment that values dedication and precision.

EDUCATIONAL BACKGROUND

College	**Bachelor of Science in Information Technology (BSIT)** ***Global Reciprocal Colleges GRC, 2024 – Present*** *GRC Building, Rizal Ave Ext, Grace Park East, Caloocan City*
Senior High School	**Information and Communication Technology (ICT)** ***Electron College of Technical Education, 2019 – 2021*** *10th ave, Grace Park East, Caloocan City*
Junior High School	**Bagong Barrio National High School, 2016 – 2020** *De Castro Street, Bagong Barrio, Caloocan City*
Elementary	**Bagong Barrio Elementary School, 2010 – 2016** *Malolos Ave. Bagong Barrio Caloocan City*

PERSONAL DATA:

Skill

- Empathic listener
- Self-possesion
- Diligent
- Flexible

HANNY CORTEZ

CONTACT

0966-465-7211

hannycortez314@gmail.com

9 Reparo Camia St.
Bagong Barrio Caloocan
City, 7new Camia st.

SKILLS

- Attentive and Hardworking
- Maintained good relationship with co-workers
- Self-motivated
- Time Management
- Graphics Design (Basic)

LANGUAGES

- Tagalog
- English

WORK EXPERIENCE

Ecomm

Agile 360 Solution INC.

- Greeting customer
- Customer Service

Siomai House

Bernabest Food Products, INC.

- Greeting customer
- Service Food

PROFILE

Motivated IT student with a strong interest in technology and programming. Currently studying Information Technology, with skills in Python, and web development. Eager to learn and apply knowledge in real-world projects. Seeking internship opportunities to gain practical experience and contribute to team success.

EDUCATION

Global Reciprocal Colleges — 2023 - PRESENT
454 GRC Bldg. Rizal Avenue Ext.
Cor. 9th Avenue Grace Park,
Caloocan City.
Second Year IT Studet

SENIOR HIGH SCHOOL — Enrolled S.Y. 2021 – 2023
Corinthian School
MZN bldg. II Gen. T. de Leon,
Valenzuela City

SECONDARY — Enrolled S.Y. 2017 – 2021
Baesa High School
Reparo st., Brgy. 161 Baesa,
Caloocan City

PRIMARY — Enrolled S.Y. 2011 - 2017
Baesa Elementary School
Reparo st., Brgy. 161 Baesa,
Caloocan City

D

GERALDYN R. CASTILLANO

OBJECTIVES

To secure a position that leverages my skills, educational background, and collaborative abilities, allowing me to contribute effectively and grow professionally.

CONTACT

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Email Address:
castillanogeraldyn@gmail.com
Address: Blk 38 lot 6 ph-3 F1 J
Dagat- dagatan
Lapu-lapu Ext. Barangay 12
Caloocan City

PERSONAL INFORMATION

Gender	:	Female
Age	:	21
Date of Birth	:	November 12, 2003
Place of Birth	:	Fabella Memorial Hospital
Religion	:	Born again Christian
Nationality	:	Filipino

EDUCATION

NAME OF SCHOOL	SCHOOL TERM
ELEMENTARY : Ninoy Aquino Elementary School Maya maya st. Malabon City	2010 – 2016
JUNIOR HIGH SCHOOL : M.B.Asistio Sr.High School Pampano St., kaunlaran village, Caloocan City	2016 – 2020
SENIOR HIGH SCHOOL : Imelda Integrated Secondary School Hasa-hasa st. Cor. Langaray St., Longos, Malabon City	2021 – Present

PERSONAL SKILLS

- Passionate
- Responsible
- Self-Motivated
- Take up new challenges
- Good in Team work
- Hospitable
- Humble and Friendly