

DOST-STII

STARBOOKS: WHIZ CHALLENGE



GROUP 6 – NEXUS

Systems Analysis & Detailed Design

MSYADD1 – SF 231

Term 1 A.Y. 2025-2026

Mr. Jose Eugenio L. Quesada

Our Team



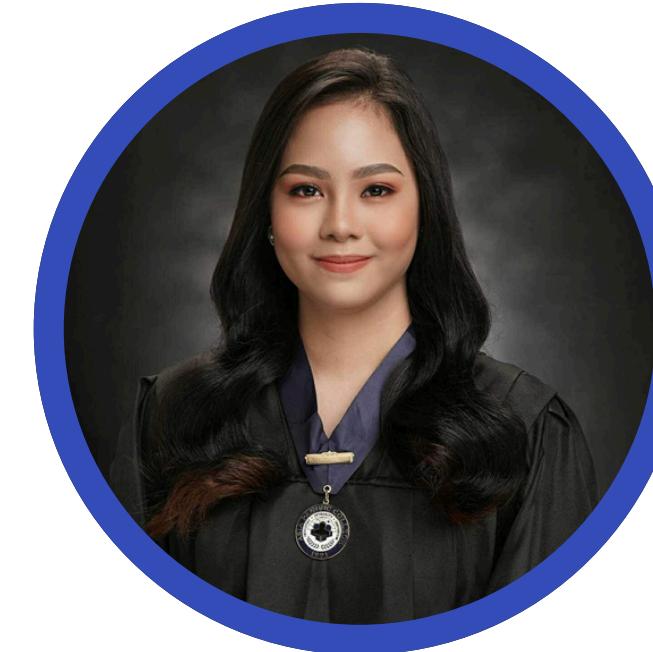
Kelly Dumbrique



Arcielle Marie Gercan



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Project Consultant

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About STARBOOKS

- An initiative by DOST-STII to promote STEM learning
- STARBOOKS = Science & Technology Academic and Research-Based Openly Operated Kiosks
- Launched in 2011 as the Philippines' first digital science library
- Designed as a free, offline learning tool for schools and communities



Kelly Dumbrique

About STARBOOKS Whiz App

- Features a solo quiz about STEM topics with badge tracking as a reward
- Used in DOST exhibits, science fairs, and events
- Designed to attract and educate visitors in a fun, interactive way



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Objectives

1. Increase user engagement and replayability

2. Support different learning styles

3. Enable performance tracking and player insights

4. Improve system scalability and manageability

5. Enhance visual appeal and user experience



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Scope

INCLUDED

- User registration and login system
- Four game modes (Quiz, Memory Card Match, Puzzle, 1v1 Quiz Battle)
- Science and Math subjects with three difficulty levels (Easy, Average, Difficult)
- Badge and reward system
- Player statistics dashboard
- Admin panel
- Data is stored locally first and syncs to the cloud when internet becomes available

EXCLUDED

- Not integrated with the main STARBOOKS digital library
- No mobile/tablet version; kiosk-only deployment
- No topic-specific categories for Whiz Memory Match
- Only jigsaw-type puzzles for Whiz Puzzle
- No customization for memory or puzzle game assets
- Whiz Battle allows only 1v1 matchmaking (via code)
- No player-level analytics; admins see only overall stats



Kelly Dumbrique



**WANT TO TEST YOUR KNOWLEDGE AND WIN
EXCITING REWARDS?**

Stakeholders

| Name | Department / Company | Position | Objectives, Requirements, Interests | Influence | Project Contribution |
|--|------------------------------|---|---|-----------|---|
| Ms. Marievic V. Narquita | DOST-STII | STARBOOKS Unit Head | Promote STEM, improve educational engagement, expand STARBOOKS reach | High | Provides expert consultation, ensures alignment with STARBOOKS goals |
| Grades 1–12 Students, Exhibit Visitors | Target Users | End Users | Enjoyable, gamified learning experience; accessible offline; aligned with curriculum | High | Will use the platform in kiosks, provide informal feedback |
| Teachers, Librarians, Facilitators | Target Users | Admin Users | Easy-to-use admin dashboard; content control; access to performance data | Medium | Manage content and monitor user engagement |
| Kelly Dumbrique | Asia Pacific College | Project Manager / QA Lead | Timely completion, smooth communication, maintain quality | High | Oversees timeline, coordinates team, leads QA, liaises with DOST |
| Janice Maxene Salipande | Asia Pacific College | Documentation Lead / UI Designer / Tester | Clear documentation, user-friendly design, test usability | High | Prepares documentation, designs UI, conducts testing |
| Shandrae Lois Quianzon | Asia Pacific College | Frontend Developer / UI Designer / Tester | Functional, intuitive front-end; responsive design | High | Codes front-end, helps with UI and testing |
| Arcielle Marie Gercan | Asia Pacific College | Backend Developer / UI Designer / Tester | Stable backend, admin features, analytics, AI tools | High | Builds backend systems, analytics tools, supports testing |
| Mr. Jose Eugenio L. Quesada | Asia Pacific College Faculty | Project Adviser | Provide technical guidance, ensure project alignment with academic standards, mentor student team | Medium | Offers technical mentorship, reviews progress, advises roadmap and implementation choices |
| Ms. Roselle Wednesday L. Gardon | Asia Pacific College Faculty | Project Consultant | Provide documentation guidance, ensure project alignment with academic standards | Medium | Offers mentorship, reviews documentation |



Kelly Dumbrique

Design Thinking Stages



Stage 1: Empathize



- First face-to-face meeting with STARBOOKS Team on April 30, 2025
- Interview with Ms. Narquita (STARBOOKS Unit Head) and Mr. Basaya (STARBOOKS Programmer)



Kelly Dumbrique

Stage 1: Empathize

ACTUAL PERSONAS



**Ms. Marievic V.
Narquita**

Role:
Unit Head – STARBOOKS,
DOST-STII

BACKGROUND

- oversees the STARBOOKS program nationwide
- ensures that STARBOOKS reaches communities in remote areas
- coordinates with local government units, school heads, and librarians to facilitate deployment and training

GOALS AND MOTIVATIONS

- Ensure that STARBOOKS remains accessible and useful, even in offline settings
- Increase engagement among younger audiences
- Maintain the quality and accuracy of STEM content

FRUSTRATIONS / PAIN POINTS:

- Difficulty in monitoring user engagement
- Limited ways to measure whether students are actually learning from STARBOOKS

TECH SKILLS & HABITS:

- Not directly involved in coding or programming
- Uses common project management tools like document, email, and messaging apps

STARBOOKS WHIZ CHALLENGE NEEDS:

- Additional game modes to increase user plays
- Implement player battle features for better user engagement
- A simple way to check overall game usage, to see if the app is achieving its learning goals



**Mr. McGyver C.
Basaya**

Role:
Lead Programmer –
STARBOOKS, DOST-STII

BACKGROUND

- lead developer of the current STARBOOKS app
- ensures the system is stable, bug-free, and compatible with the hardware used in kiosks

FRUSTRATIONS / PAIN POINTS:

- Hardware limitations in some deployments
- Variability in technical skills among librarians and teachers
- Challenges in updating and syncing content in offline environments

STARBOOKS WHIZ CHALLENGE NEEDS:

- A game system that is lightweight but engaging
- Modular design so new games or quizzes can be added without heavy rework
- Data syncing across different kiosks for easy admin management

Ms. Marievic V. Narquita – STARBOOKS Unit Head

Mr. McGyver C. Basaya – STARBOOKS Lead Program



Kelly Dumbrique

Stage 1: Empathize

THEORETICAL PERSONAS



Chloe Ramirez

Role:
Grade 5 Student –
First-time STARBOOKS
Visitor at Science Fair

BACKGROUND

- a 10-year-old elementary student visiting the science fair with her classmates
- curious with the booths and activities
- this is her first time seeing the STARBOOKS kiosks

GOALS AND MOTIVATIONS

- Try fun activities she's never done before
- Win tokens or prizes
- Play something she can easily understand in a few minutes

FRUSTRATIONS / PAIN POINTS:

- Gets bored quickly if there's too much reading
- May lose interest if the game is too hard right away
- Easily distracted by other booths

STARBOOKS WHIZ CHALLENGE NEEDS:

- Eye-catching visuals
- Short game sessions
- Fun sound effects or animations that make the experience memorable

TECH SKILLS & HABITS:

- Knows how to use tablets and mobile games
- Prefers games with instant rewards or effects



John Ray Santos

Role:
Grade 8 Student –
Public High School
(STARBOOKS User)

BACKGROUND

- a 14-year-old student in a public high school
- his school has a STARBOOKS kiosk in the library
- enjoys interactive learning

FRUSTRATIONS / PAIN POINTS:

- Reading long text on the kiosk feels tiring
- STARBOOKS kiosk is too "serious" and doesn't feel exciting
- Limited time in the library because of other activities and class schedules

STARBOOKS WHIZ CHALLENGE NEEDS:

- Mini-games that make Science and Math feel like a challenge, not a lecture
- A way to track progress, earn rewards, and compare scores with classmates
- Colorful, animated interface that doesn't look like a plain educational app

Chloe Ramirez – Exhibit Visitor

John Ray Santos – STARBOOKS User



Kelly Dumbrique

Stage 1: Empathize

THEORETICAL PERSONAS



Mr. Carlo Mendoza

Role:
Teacher at the
Science Fair

BACKGROUND

- accompanies a group of students from his class to the science fair
- He wants them to explore as many educational booths as possible
- He appreciates tools that can make his subject more engaging in class

GOALS AND MOTIVATIONS

- See if STARBOOKS can be integrated into his teaching
- Find ways to keep students engaged
- Discover free or low-cost educational platforms

FRUSTRATIONS / PAIN POINTS:

- Limited time at each booth due to tight schedules
- Students tend to skip the academic booths
- Hard to monitor all students at once during the fair

TECH SKILLS & HABITS:

- Comfortable with computers
- Open to trying new teaching tools if they're easy to adopt
- Often looks for free digital learning platforms

STARBOOKS WHIZ CHALLENGE NEEDS:

- Quick demo mode showcasing features without long setup
- Clear handouts or flyers explaining how schools can get STARBOOKS
- Option to show student leaderboards or instant quiz results for group engagement



Ms. Liza de Vera

Role:
School Librarian –
Public High School

BACKGROUND

- manages the school library and is also in charge of the STARBOOKS kiosks
- assists students in using the app
- reports technical issues to DOST-STII

FRUSTRATIONS / PAIN POINTS:

- Students quickly lose interest if the content looks too academic
- Some students are shy to ask for help and end up not using STARBOOKS at all
- Limited training on troubleshooting

STARBOOKS WHIZ CHALLENGE NEEDS:

- Simple, attractive game interface that doesn't require long explanations
- Easy system maintenance with minimal technical steps
- Features that encourage friendly competition among students to boost kiosk visits

Mr. Carlo Mendoza - Teacher at Science Fair

Ms. Liza de Vera - School Librarian



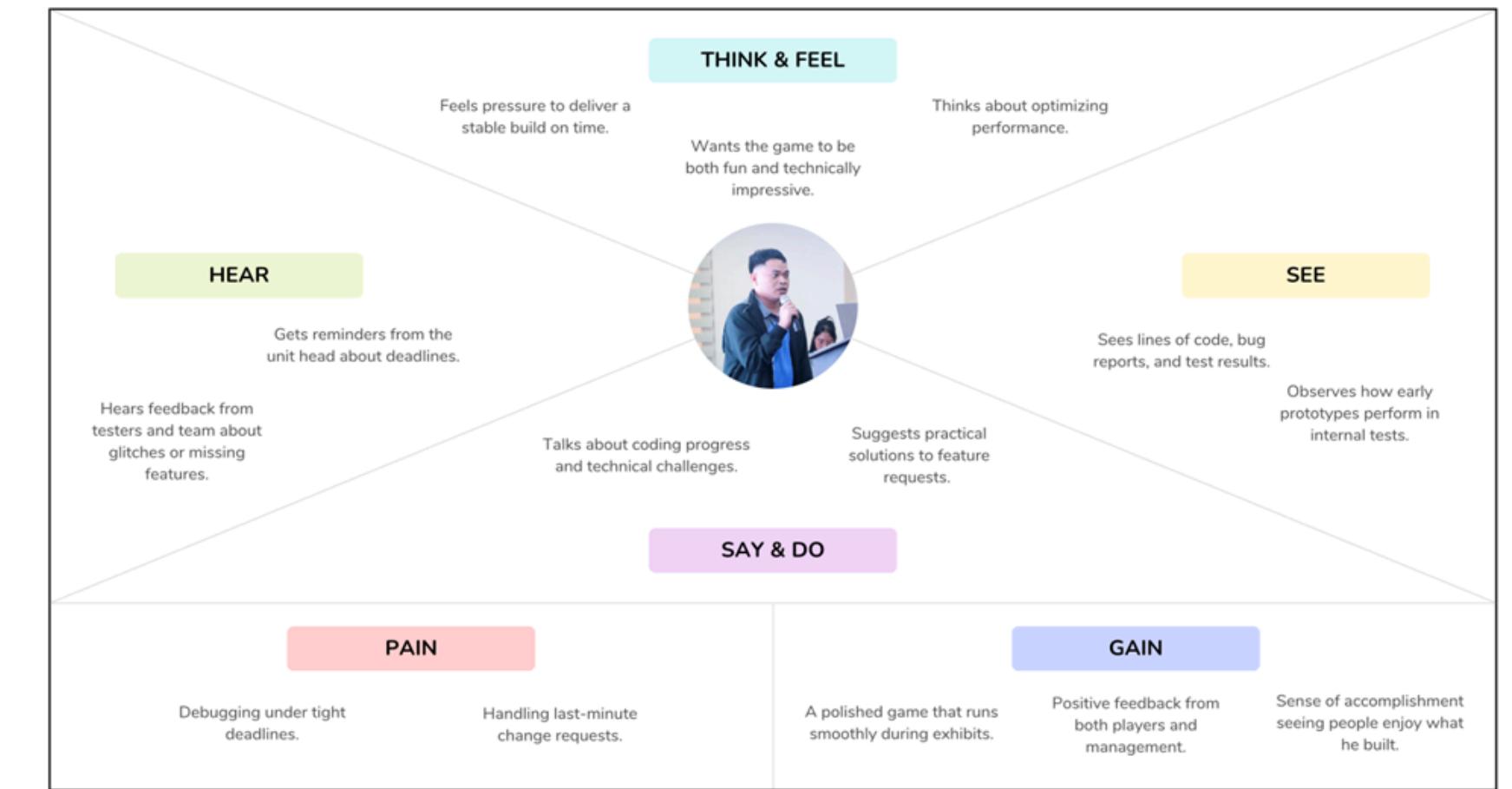
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Stage 1: Empathize

EMPATHY MAPS



Ms. Marievic V. Narquita - STARBOOKS Unit Head



Mr. McGyver C. Basaya - STARBOOKS Lead Program



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Stage 1: Empathize

EMPATHY MAPS



Chloe Ramirez - Exhibit Visitor

John Ray Santos - STARBOOKS User



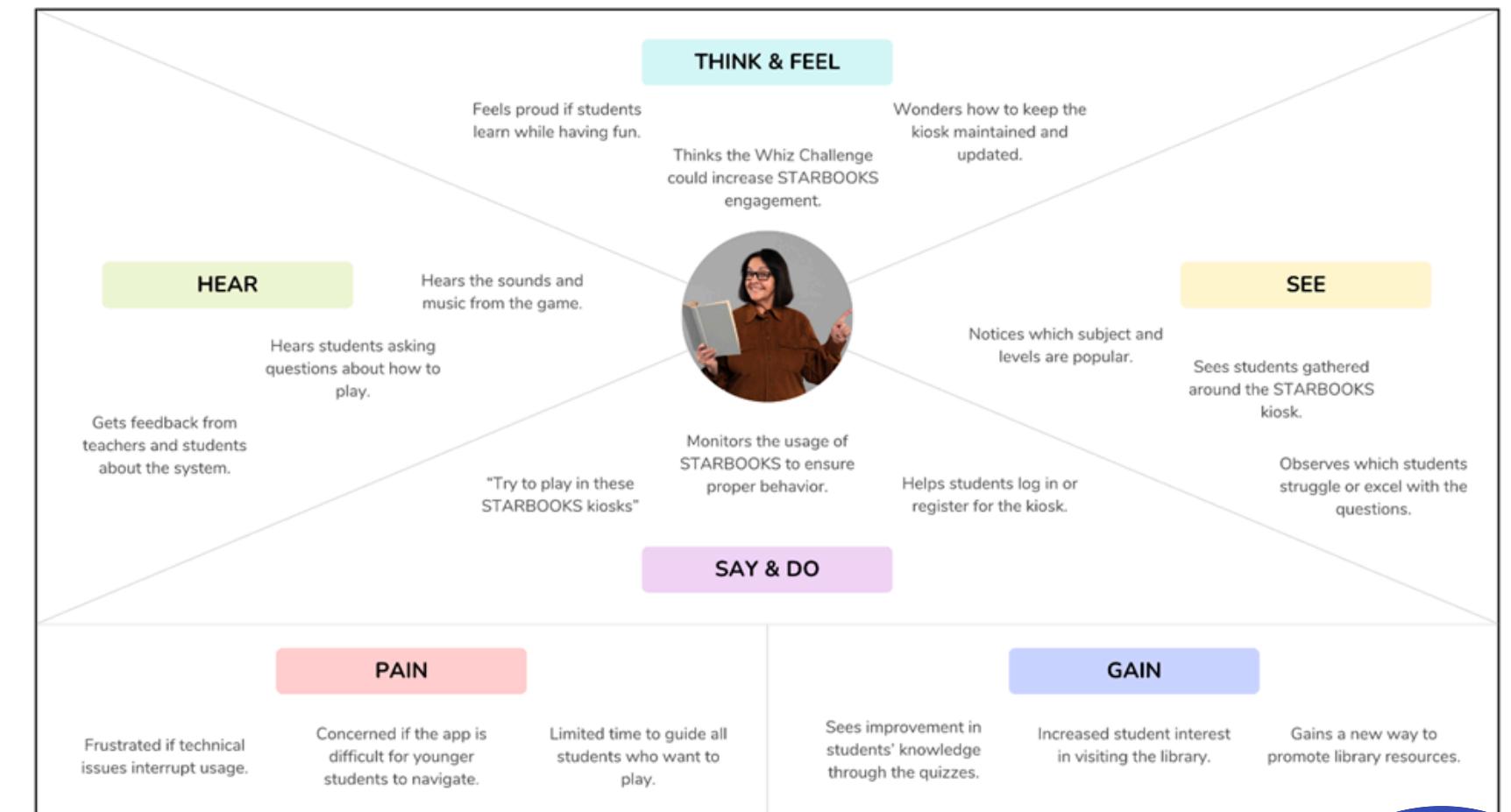
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Stage 1: Empathize

EMPATHY MAPS



Mr. Carlo Mendoza - Teacher at Science Fair



Ms. Liza de Vera - School Librarian



Kelly Dumbrique

Stage 1: Empathize

PAINS

- First-time users struggle to play without guidance.
- Time for trying the games is limited.
- DOST-STII worries about system performance during exhibits.

GAINS

- Games make Science and Math more enjoyable.
- Rewards encourage repeat play.
- Educators see the system as a modern way to promote their school or exhibit.

ANALYSIS

- Keep onboarding simple.
- Make games short and replayable.
- Ensure reliable offline performance with quick fixes for exhibit days.



Kelly Dumbrique

Stage 2: Define

CLUSTERED PROBLEMS

USER EXPERIENCE & USABILITY

- First-time users confused about game mechanics and controls.
- Younger players need clearer visual cues and instructions.
- Difficulty in locating specific game levels.

GAME DESIGN & GAMEPLAY FLOW

- Students can't play for long because of short recess or limited exhibit time.
- Games with longer question sets can't always be finished in one sitting.
- No quick-play or mini-challenge option for visitors with limited time.
- Events or fairs have many attractions, so the app has to capture attention fast.



Shandrae Quianzon

Stage 2: Define

CLUSTERED PROBLEMS

TECHNICAL & PERFORMANCE ISSUES

- Lag or slow loading during peak usage causes frustration.
- No easy way for on-site staff to reset or restart the system if a problem occurs.

ENGAGEMENT & CONTENT

- Some players lose interest after a few rounds because it lacks other game modes.
- Limited variety in question formats can make quiz feel monotonous.
- Badges and rewards don't always feel significant or personalized.
- No feature to encourage friendly team play or group competition.



Shandrae Quianzon

Stage 2: Define

HOW MIGHT WE QUESTIONS?

- Design an interface easy for first-time or young users?
- Simplify navigation to key features?
- Use familiar icons/visuals instead of long text?
- Keep sessions short but meaningful?
- Allow pause and resume without losing progress?
- Ensure smooth, offline-ready performance on busy days?
- Make troubleshooting simple for non-technical staff?
- Encourage repeat play with rewards and variety?
- Balance education with fun gameplay?
- Make achievements and badges feel meaningful?



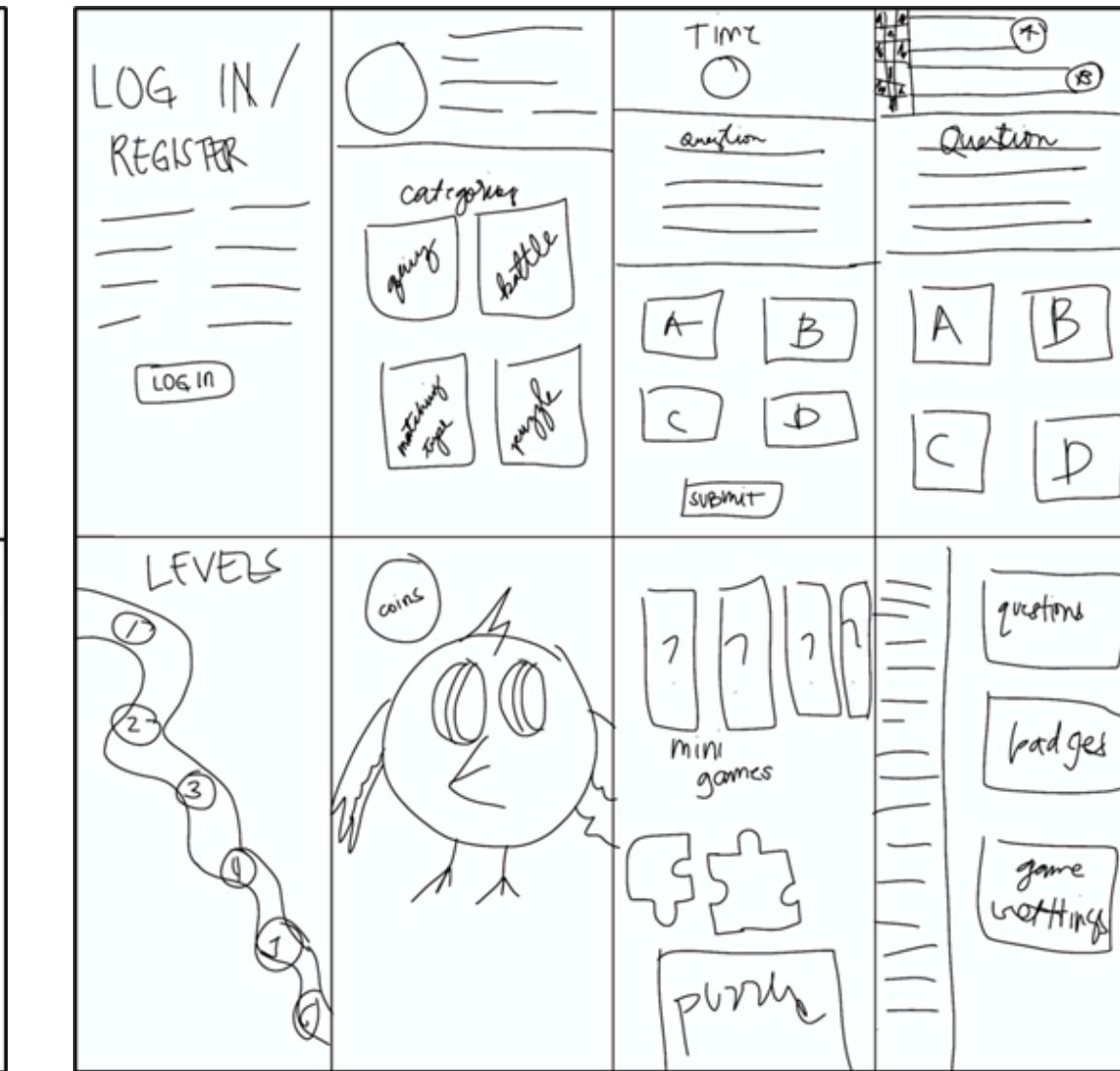
Shandrae Quianzon

Stage 3: Ideate

C R A Z Y 8 ' S



Kelly Dumbrique



Arcielle Marie Gercan



Shandrae Quianzon

Stage 3: Ideate

C R A Z Y 8 ' S



Shandrae Lois Quianzon

Janice Maxene Salipande



Shandrae Quianzon

Stage 3: Ideate

POST-IT VOTING

Add 3 other game modes
(Memory card game, puzzle, 1v1 battle)

Add player stats

AI feature for quiz question generation

Add analytics for admin panel

Separate Science and Math categories

Game Level Map

Explain the correct answers after every question

Difficulty levels for each game mode

Select categories/themes for Puzzle Game

Create Battle Room for 1v1 Battle Mode (Game code matchmaking)

Offline-first app

Allows data syncing when internet is available



Shandrae Quianzon

Stage 3: Ideate

DESIRABLE, VIABLE, FEASIBLE

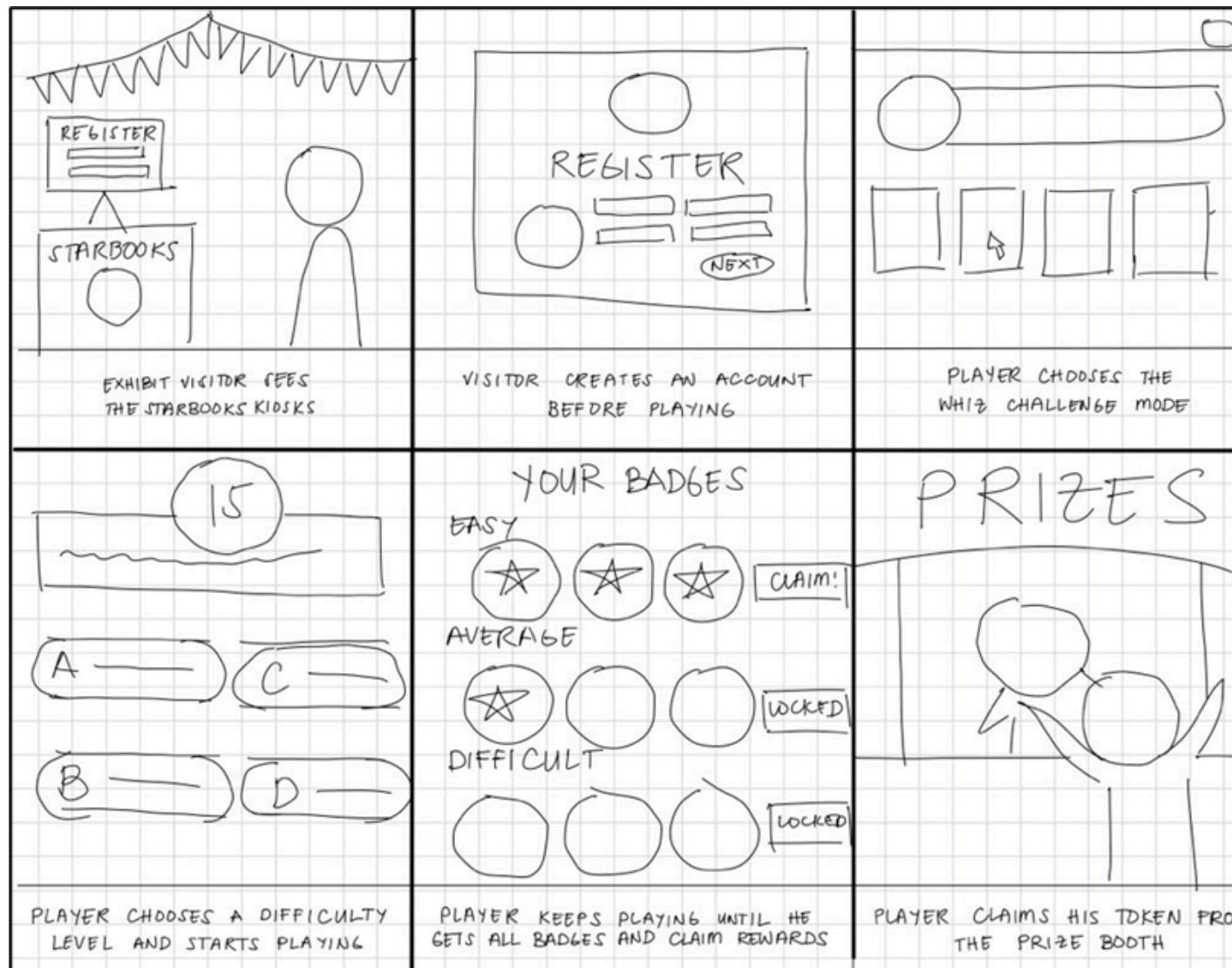
| Idea | Desirable | Viable | Feasible |
|--|-----------|--------|----------|
| Add 3 other game modes (Memory card game, puzzle, 1v1 battle) | ✓✓✓✓ | ✓✓✓✓ | ✓✓✓ |
| Add player stats | ✓✓✓✓ | ✓✓✓✓ | ✓✓✓✓ |
| AI feature for quiz question generation | ✓✓✓✓ | ✓✓✓✓ | ✓✓✓✓ |
| Add analytics for admin panel | ✓✓✓✓ | ✓✓✓✓ | ✓✓✓✓ |
| Separate Science and Math categories | ✓✓✓✓ | ✓✓✓✓ | ✓✓✓✓ |
| Game Level Map | ✓✓✓✓ | ✓✓✓✓ | ✓✓ |
| Explain the correct answers after every question | ✓✓✓✓ | ✓✓✓✓ | ✓✓✓✓ |
| Difficulty levels for each game mode | ✓✓✓✓ | ✓✓✓✓ | ✓✓✓✓ |
| Select categories/themes for Puzzle Game | ✓✓✓✓ | ✓✓✓✓ | ✓✓✓✓ |
| Create Battle Room for 1v1 Battle Mode (Game code matchmaking) | ✓✓✓✓ | ✓✓ | ✓✓ |
| Offline-first app | ✓✓✓✓ | ✓✓ | ✓✓ |
| Allows data syncing when internet is available | ✓✓✓✓ | ✓✓ | ✓✓ |



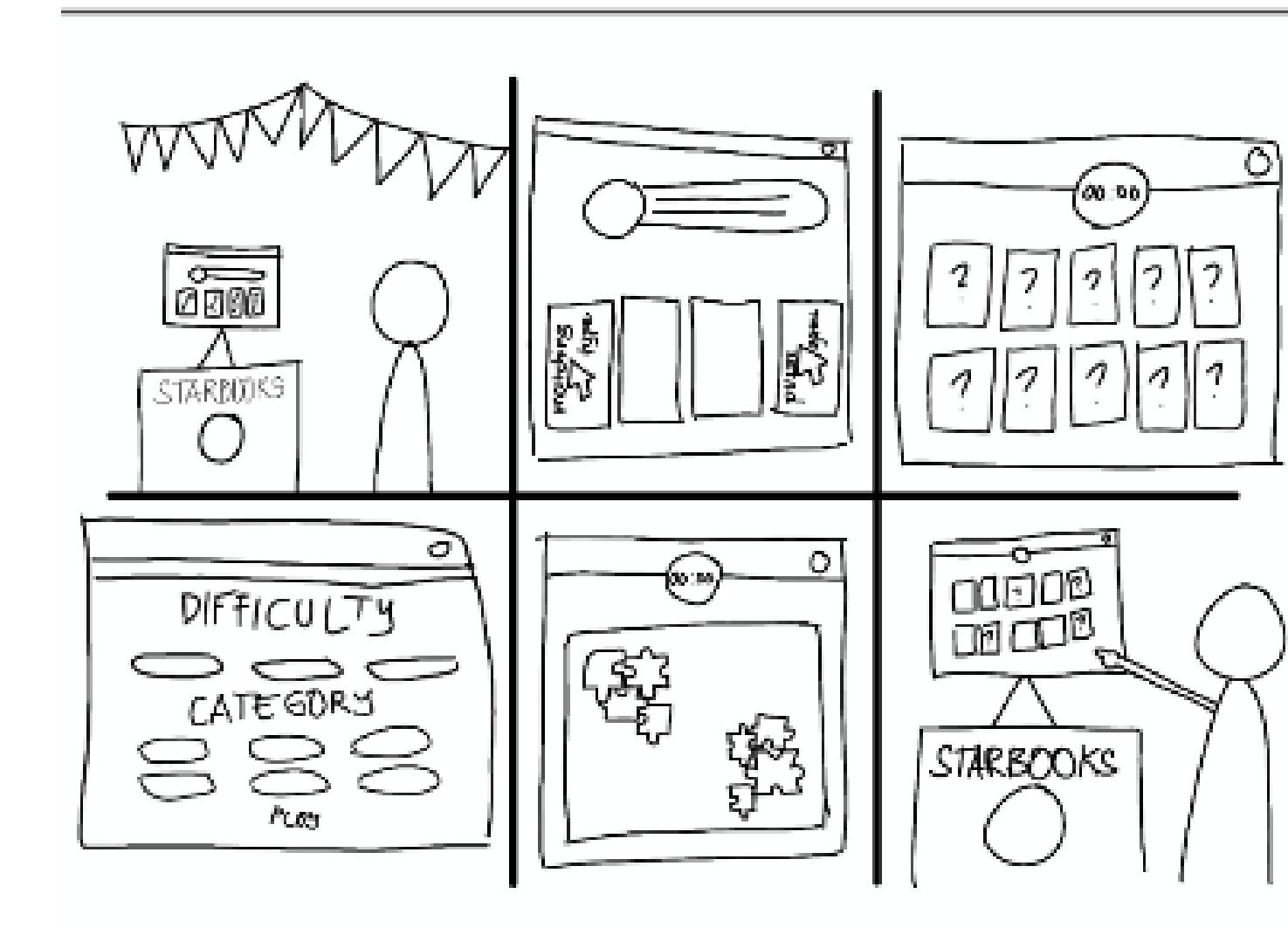
Shandrae Quianzon

Stage 4: Prototype

STORYBOARDING



Storyboard 1: Exhibit visitor playing the Whiz Challenge mode



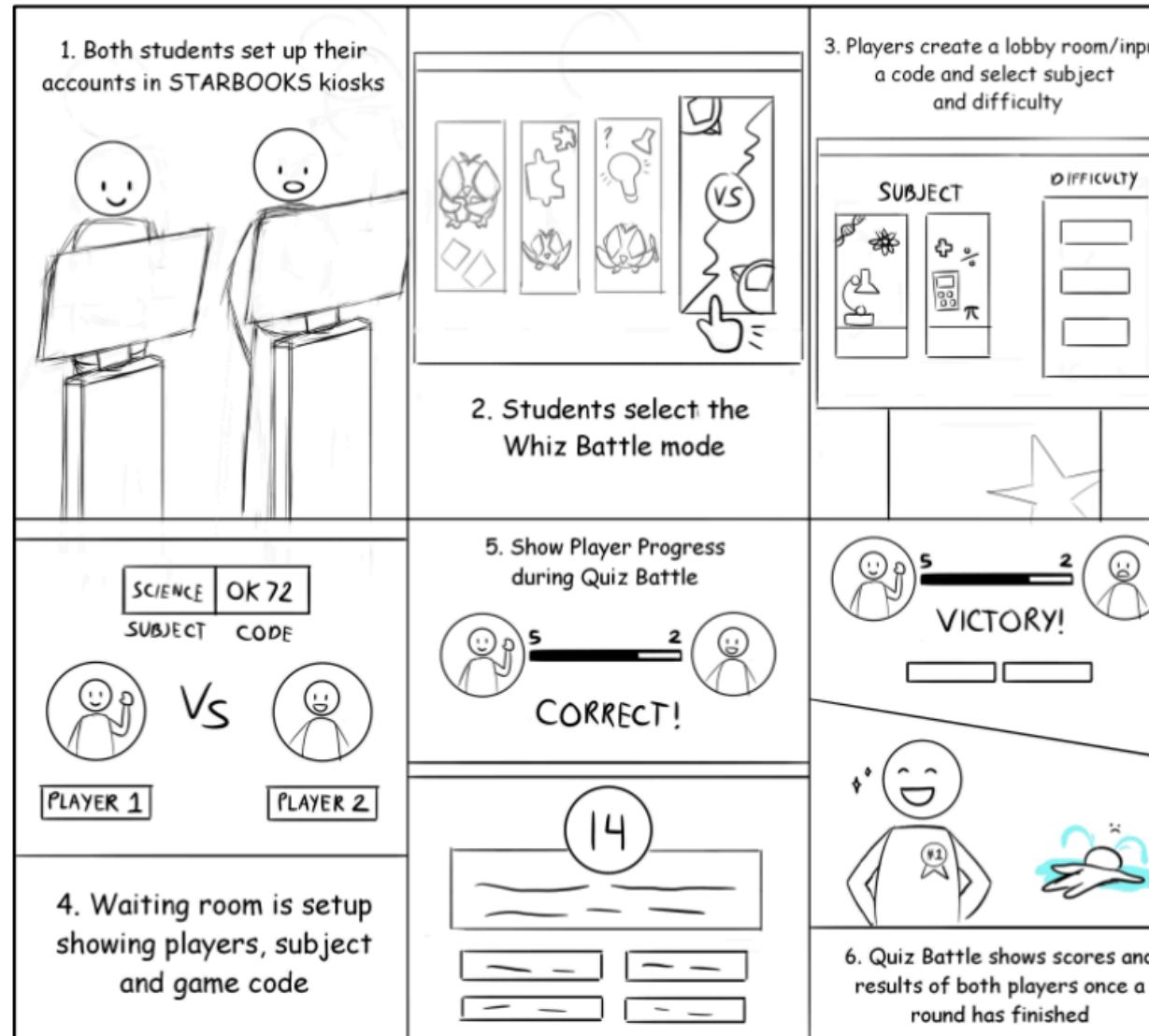
Storyboard 2: Exhibit visitor playing the Memory Match and Jigsaw Puzzle modes



Shandrae Quianzon

Stage 4: Prototype

STORYBOARDING



Storyboard 3: High school students playing against each other in the lvl Battle



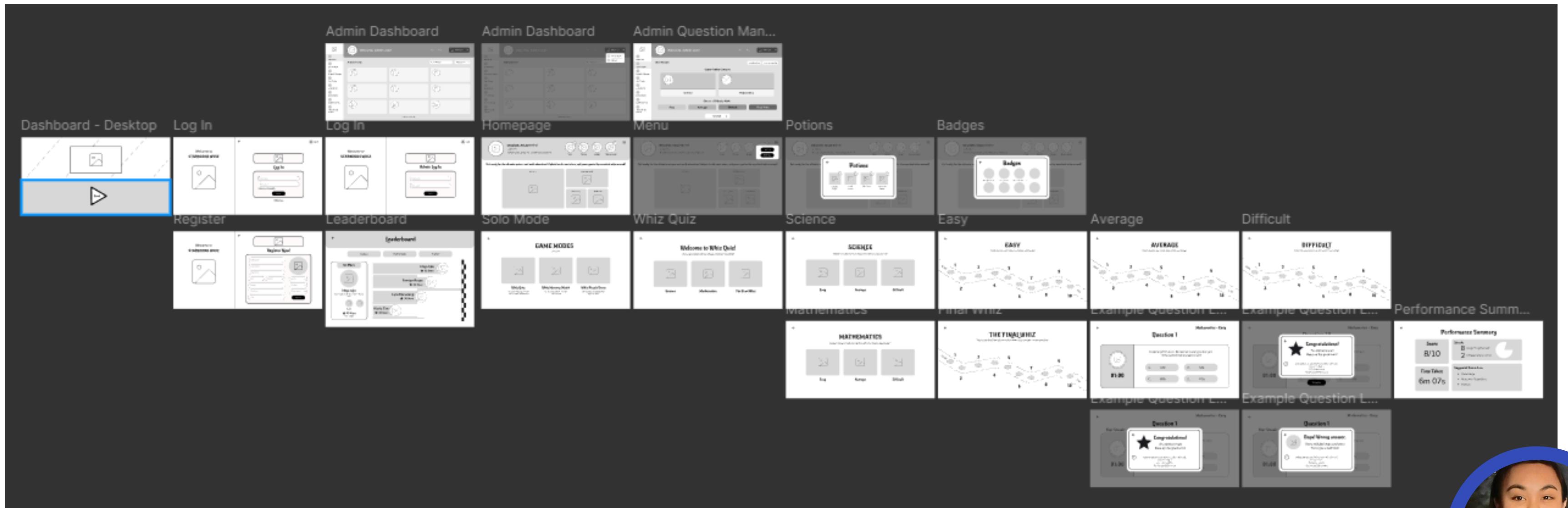
Storyboard 4: Librarian adding questions and viewing analytics in the admin panel



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Stage 4: Prototype

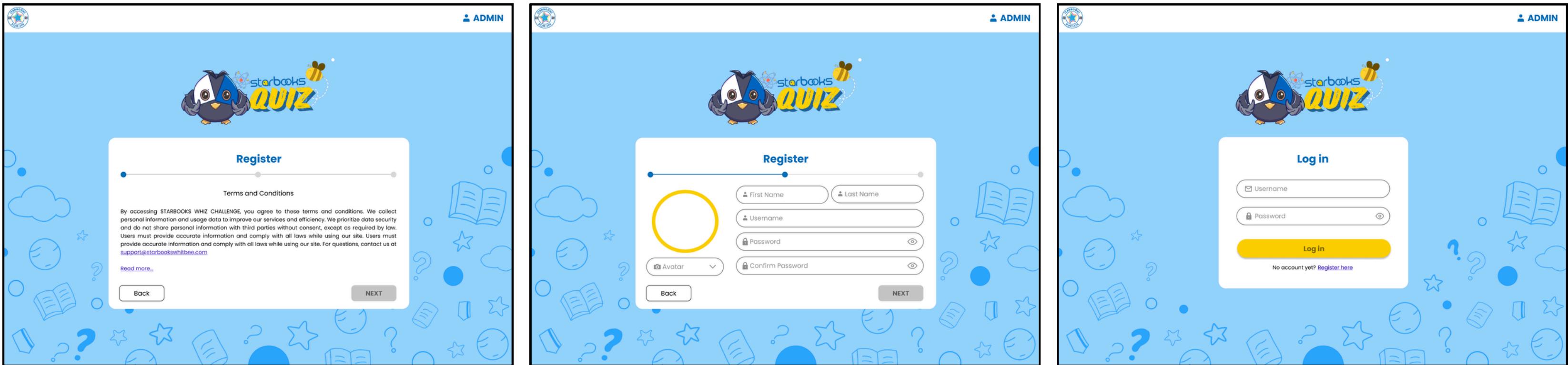
WIREFRAMING



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Stage 4: Prototype

MOCK-UP DESIGN



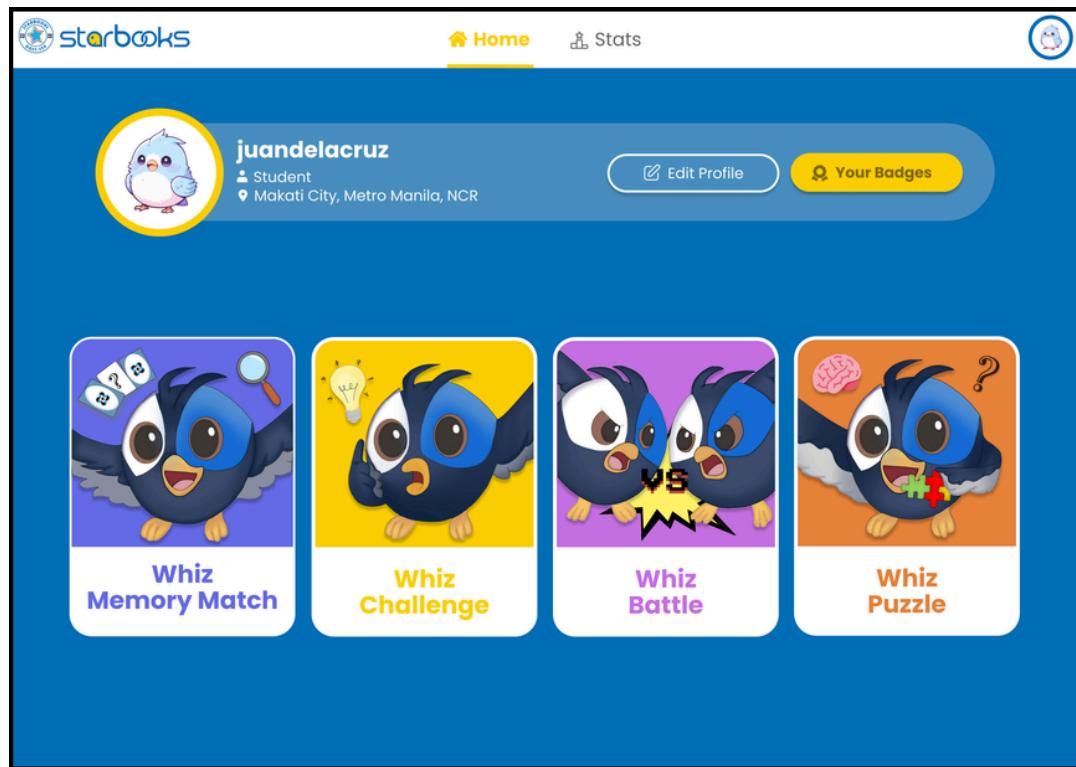
Register and Login Pages



Shandrae Quianzon

Stage 4: Prototype

MOCK-UP DESIGN



A screenshot of the 'SCIENCE EASY' game mode. The top bar shows 'SCIENCE EASY' and a large circular timer with '15'. Below it, the text 'Question: 1 of 10' and 'Score: 0' are displayed. The question is 'What is the largest planet in our solar system?'. Four answer options are shown in colored boxes: 'Earth' (blue), 'Jupiter' (orange), 'Uranus' (red), and 'Saturn' (green). The background is white with green horizontal bars at the bottom of each answer box.

A 'CONGRATULATIONS!' screen after completing the game. It features a large yellow text 'CONGRATULATIONS!' and a message 'You've unlocked a new badge!' below it. A cartoon owl character wearing a graduation cap is shown. The performance stats are listed as: '10 Correct', '0 Incorrect', and '5.2 s Avg. Time / Question'. At the bottom are 'Exit Game' and 'Continue playing' buttons.

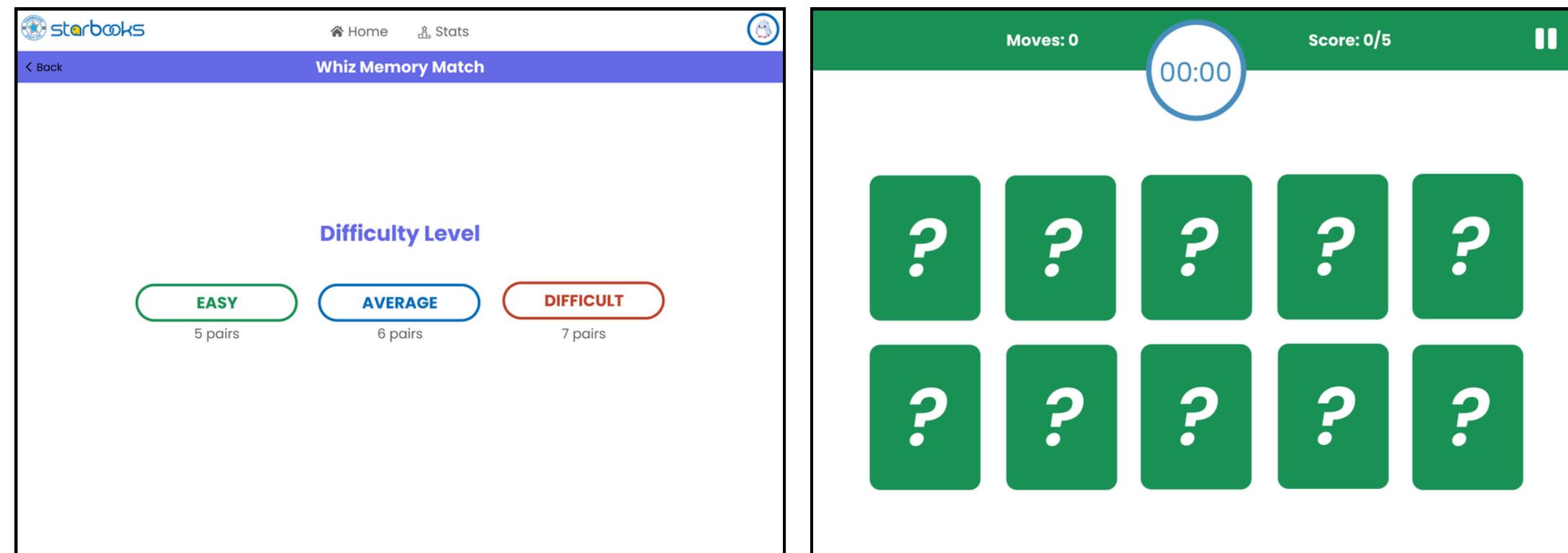
Whiz Challenge Game Mode



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Stage 4: Prototype

MOCK-UP DESIGN



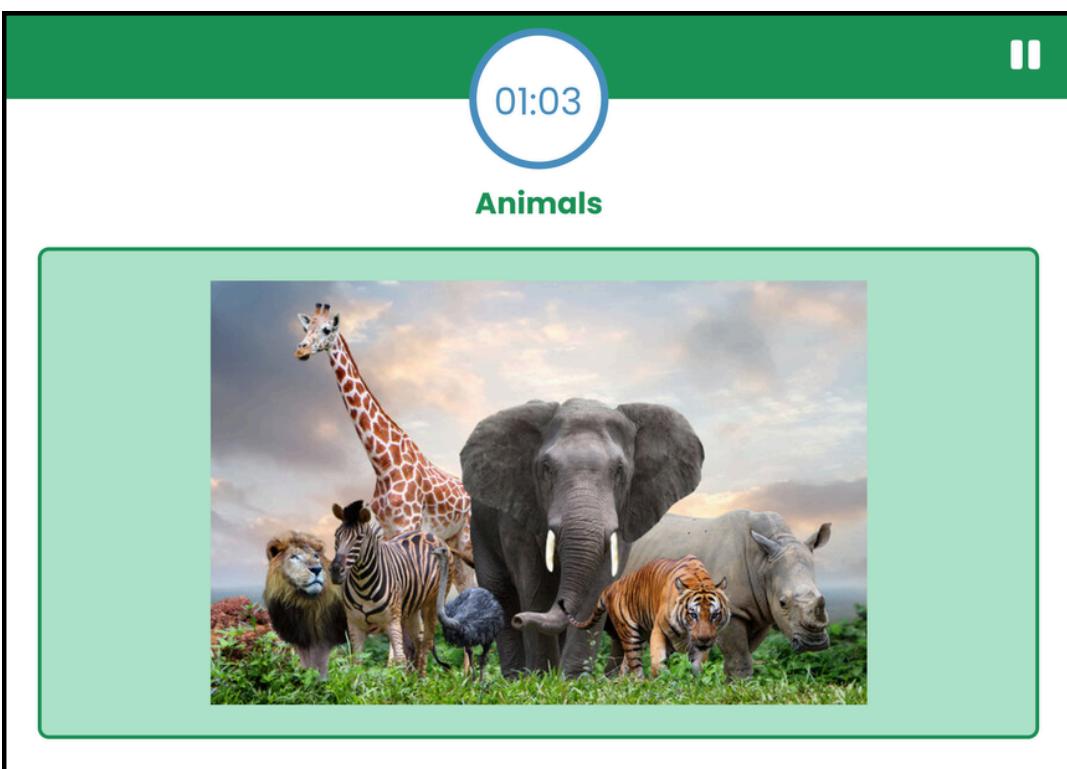
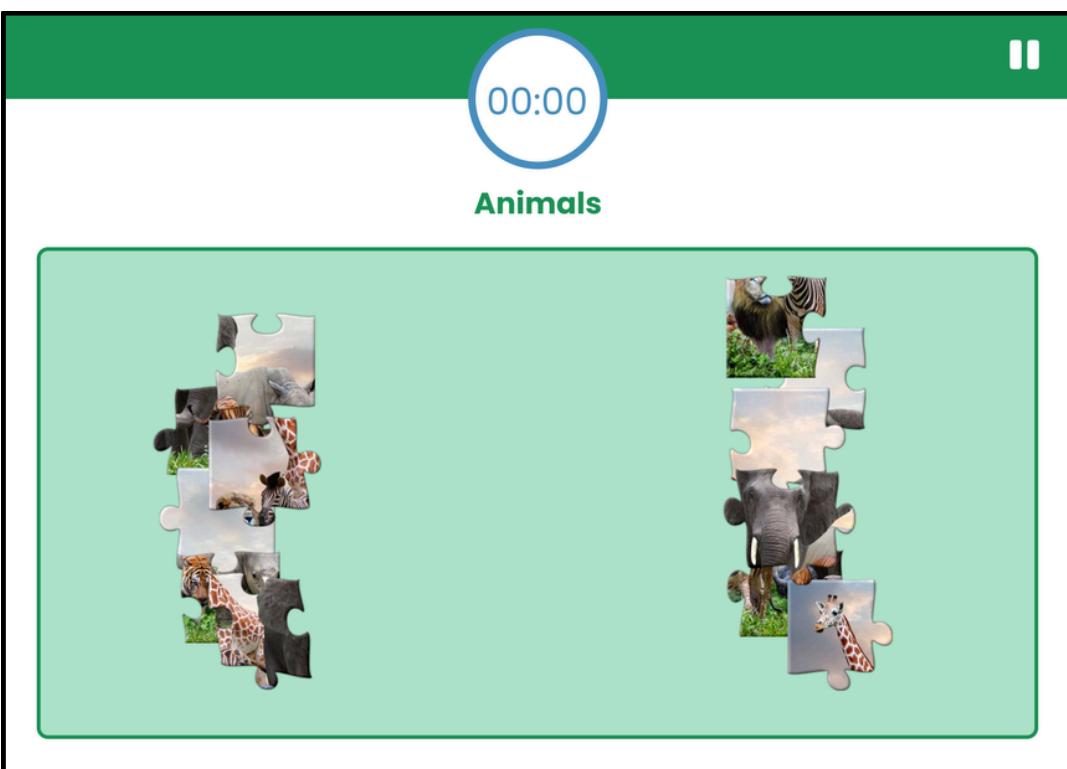
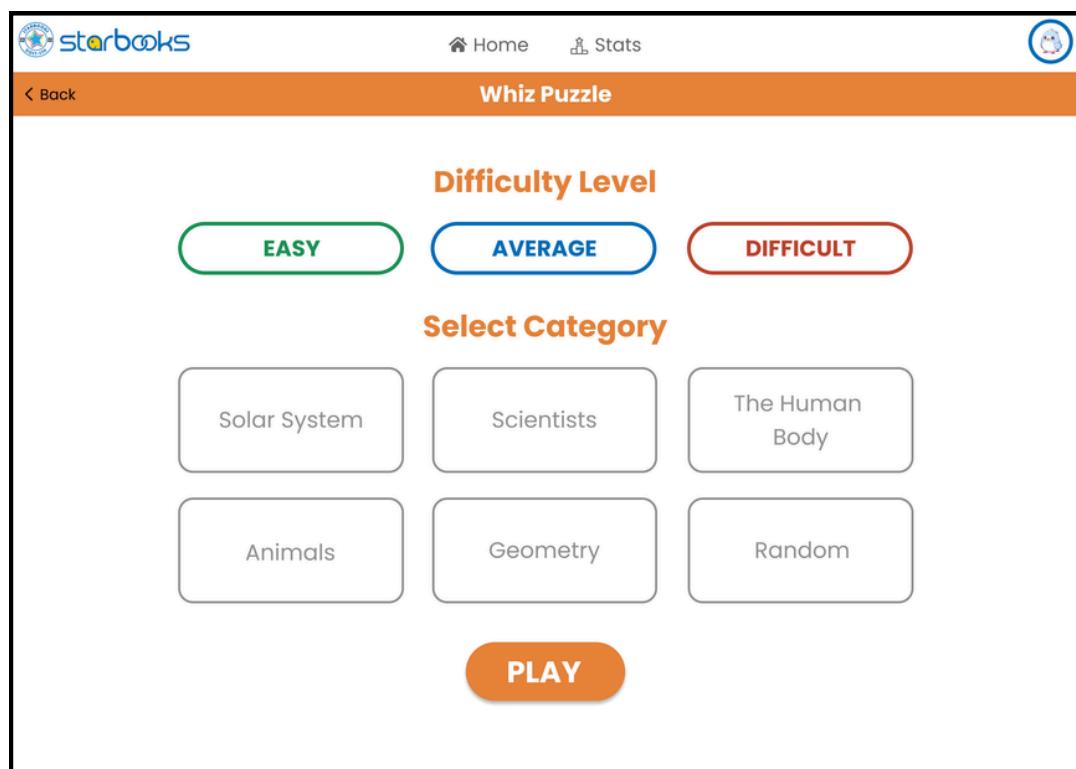
Whiz Memory Match Game Mode



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Stage 4: Prototype

MOCK-UP DESIGN



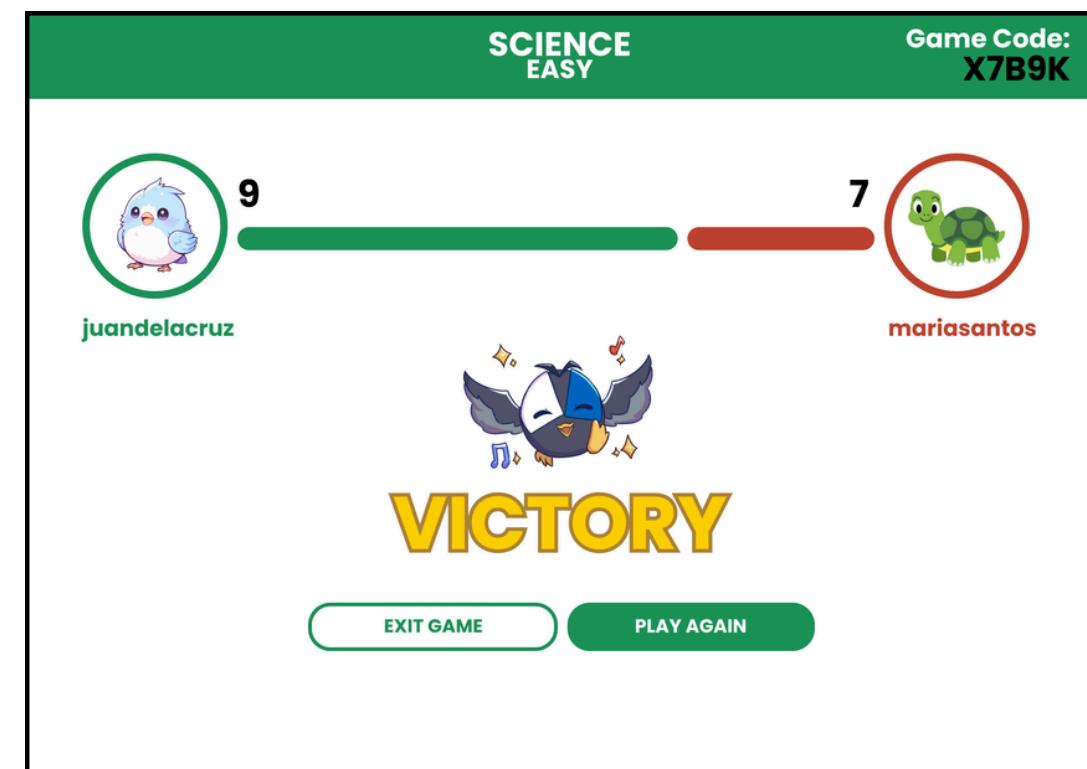
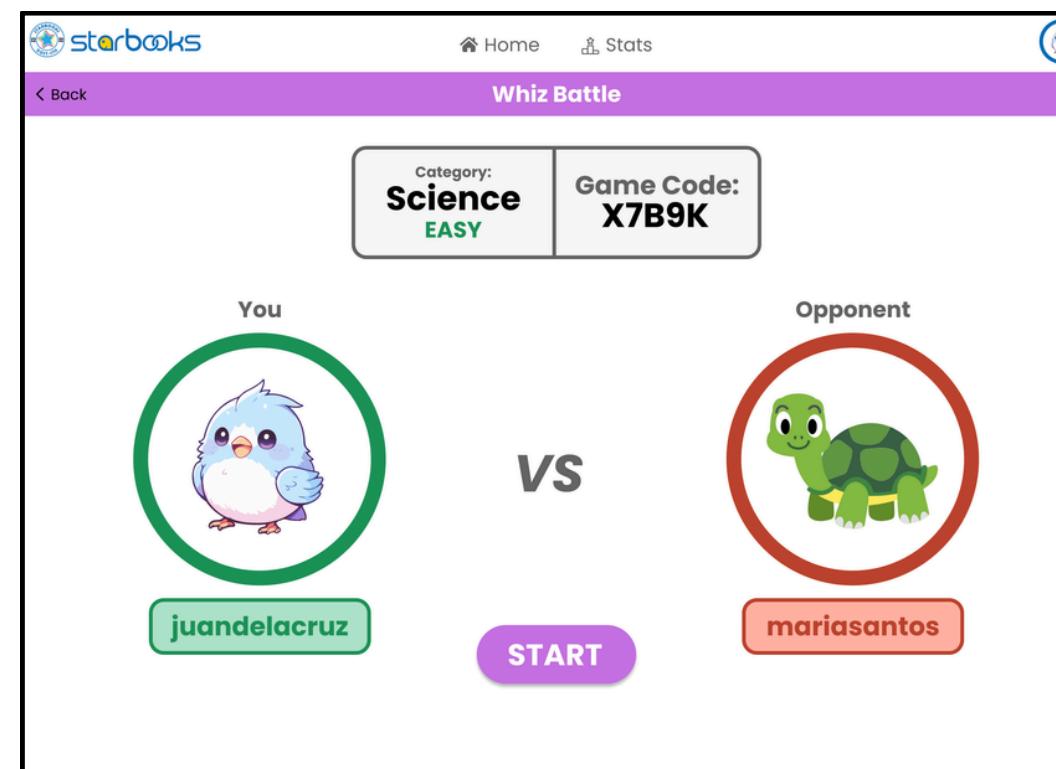
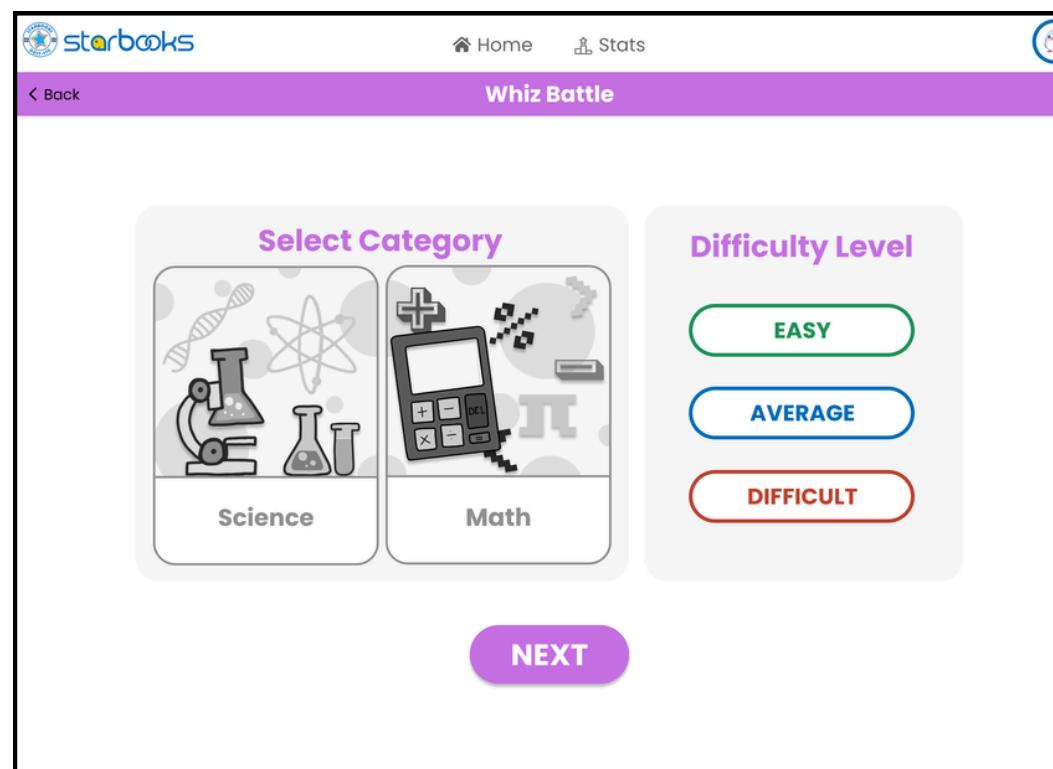
Whiz Puzzle Game Mode



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Stage 4: Prototype

MOCK-UP DESIGN



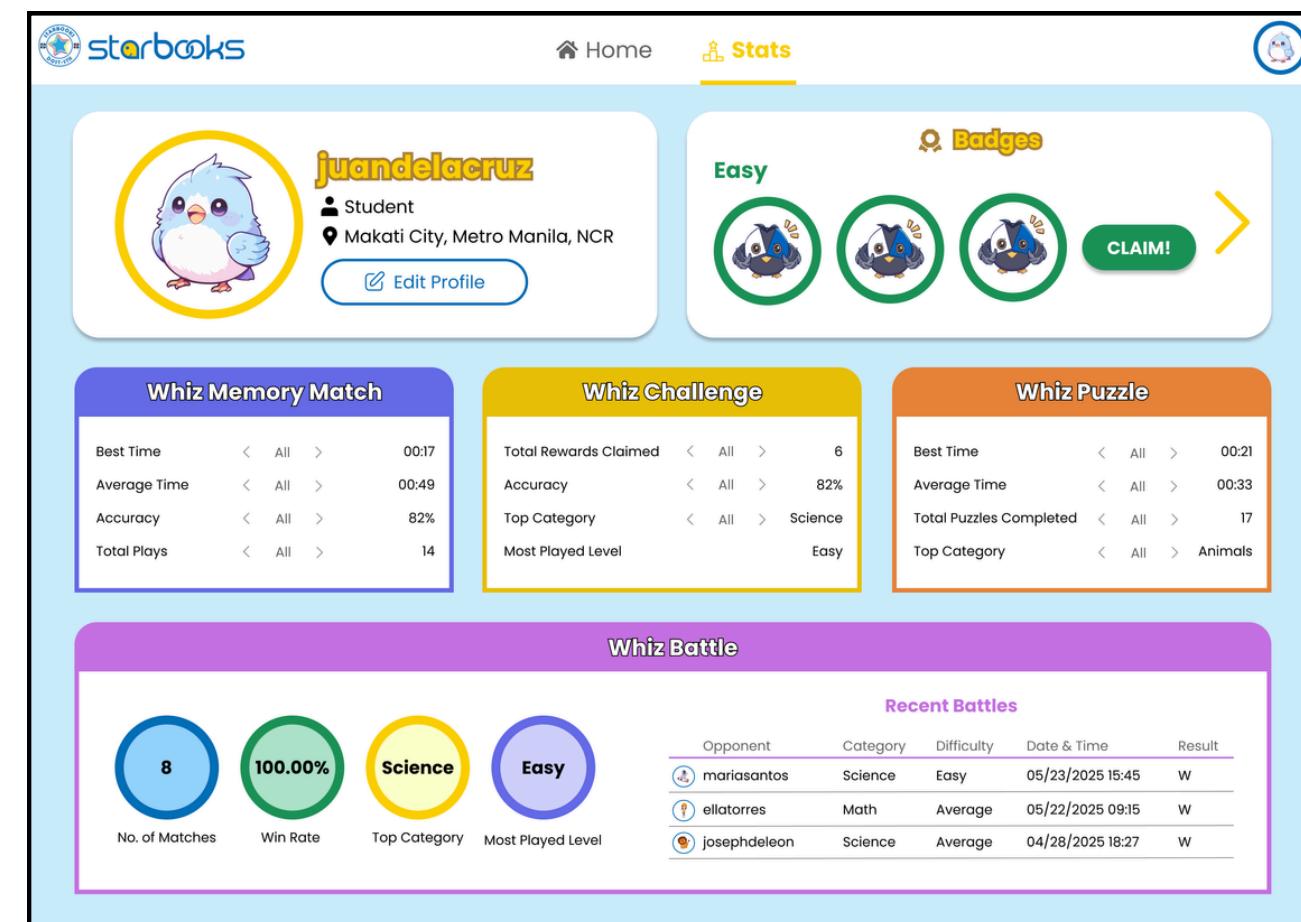
Whiz Battle Game Mode



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Stage 4: Prototype

MOCK-UP DESIGN



The mock-up design for the Starbooks Stats page is a vibrant, colorful interface. At the top, there's a navigation bar with icons for Home, Stats (which is highlighted in yellow), and a user profile icon. The main content area features a user profile for "juandelacruz" (Student, Makati City, Metro Manila, NCR) with a blue bird icon. Below the profile are three sections: "Whiz Memory Match" (purple), "Whiz Challenge" (yellow), and "Whiz Puzzle" (orange). Each section displays various performance metrics like Best Time, Average Time, Accuracy, and Total Plays. To the right of these sections is a "Badges" section titled "Easy" showing three owl badges with a "CLAIM!" button. At the bottom is a "Whiz Battle" section with a purple header, showing a summary of 8 matches, 100.00% win rate, Science as the top category, and Easy as the most played level. It also includes a "Recent Battles" table:

| Opponent | Category | Difficulty | Date & Time | Result |
|--------------|----------|------------|------------------|--------|
| mariasantos | Science | Easy | 05/22/2025 15:45 | W |
| ellatorres | Math | Average | 05/22/2025 09:15 | W |
| josephdeleon | Science | Average | 04/28/2025 18:27 | W |

Player Stats



Shandrae Quianzon

Stage 4: Prototype

MOCK-UP DESIGN

The screenshots illustrate the Admin Dashboard interface for the Starbooks platform:

- Dashboard:** Shows key metrics: 231 Total Registered Players, Whiz Challenge as the Most Played Game Mode, Science as the Top Category, and an Average Session Duration of 6 mins 45 sec. It also displays Player Registration Trend (Monthly), Most Played Game Mode (Pie Chart), Most Played Level per Game Mode (Bar Chart), and Reward Claims Summary (Bar Chart).
- List of Admins:** Displays a list of two administrators: John and Stacey. Each entry includes a profile picture placeholder, Username, Role, and Address.
- List of Questions:** Shows a grid of questions with columns for Question, Year Level, Category, Correct Answer, Difficulty, Status, and Actions. Examples include:
 - Which organ is responsible for pumping blood throughout the body? (Junior (Grade 7-10), Science, Heart, Easy)
 - What is the chemical symbol for water? (Junior (Grade 7-10), Science, H₂O, Average)
 - Which gas do plants absorb during photosynthesis? (Junior (Grade 7-10), Science, Carbon dioxide (CO₂), Average)
 - What part of the plant makes food using sunlight? (Elementary (Grade 1-6), Science, Leaves, Easy)
- Question Detail View:** A detailed view of a specific question: "What is the chemical symbol for water?" (H₂O). It shows the question text, category (Science), correct answer (H₂O), difficulty (Average), status (Active), and edit/delete icons.

Admin Dashboard



Shandrae Quanzon

Stage 5: Test

FEEDBACK

For enhancements, they suggested the following:

- **Add more cards for the Memory Match Game Mode** in each level to increase challenge.
- **Include categories for the Puzzle Game Mode** so players can choose themes.
- Incorporate a **racing-style visual while players compete in the 1v1 Battle Mode** to make the gameplay more exciting.

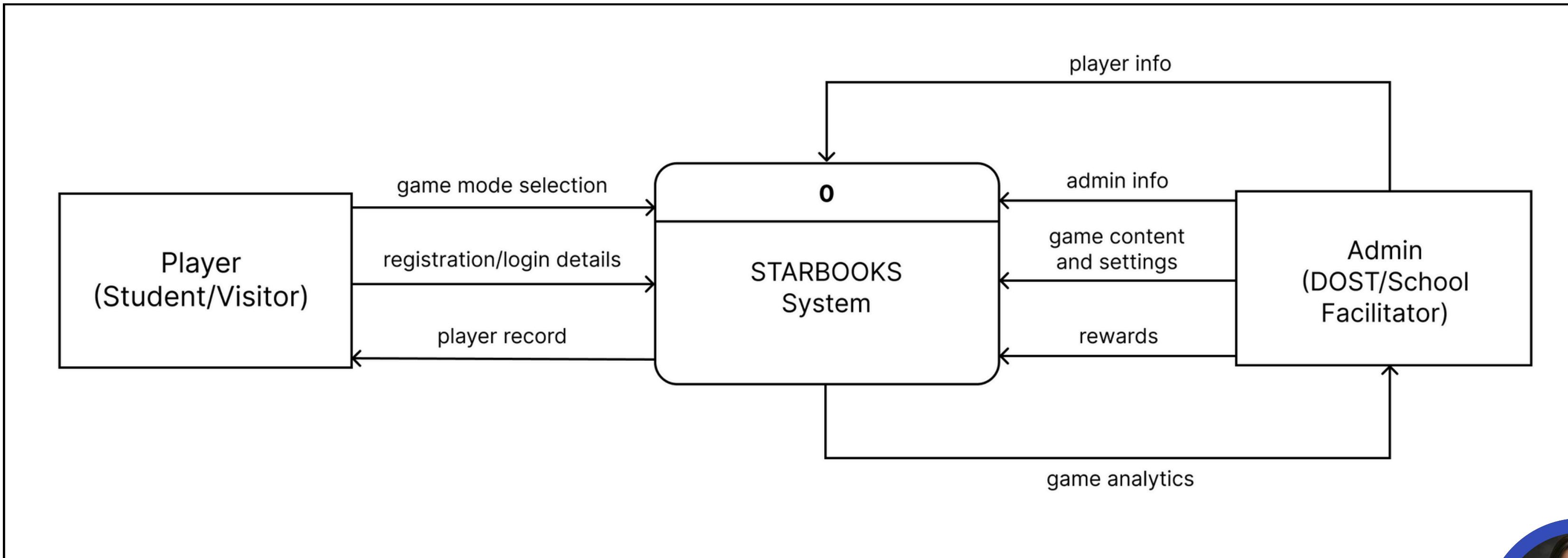


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Dataflow Diagrams

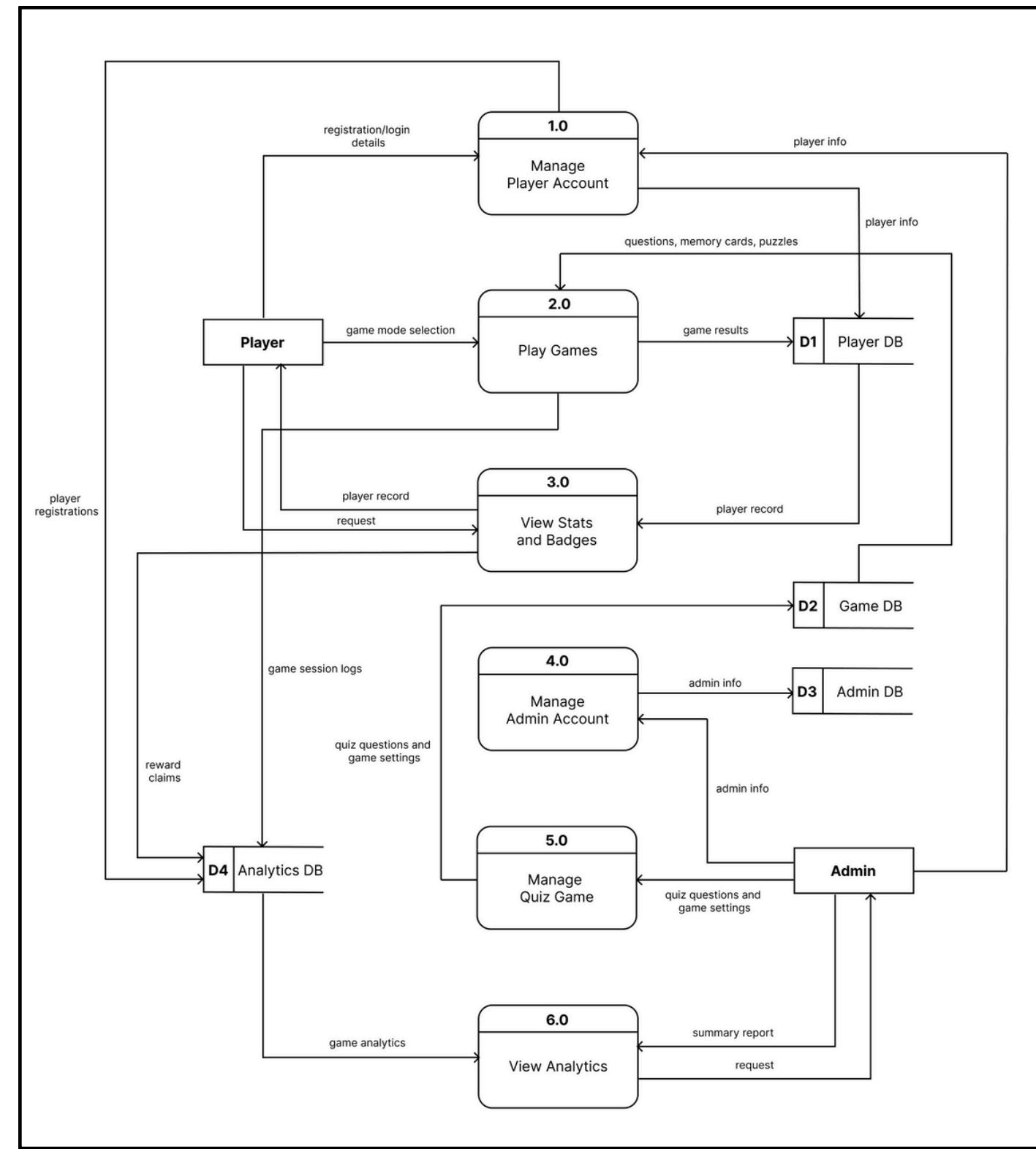


Level 0



Janice Salipande

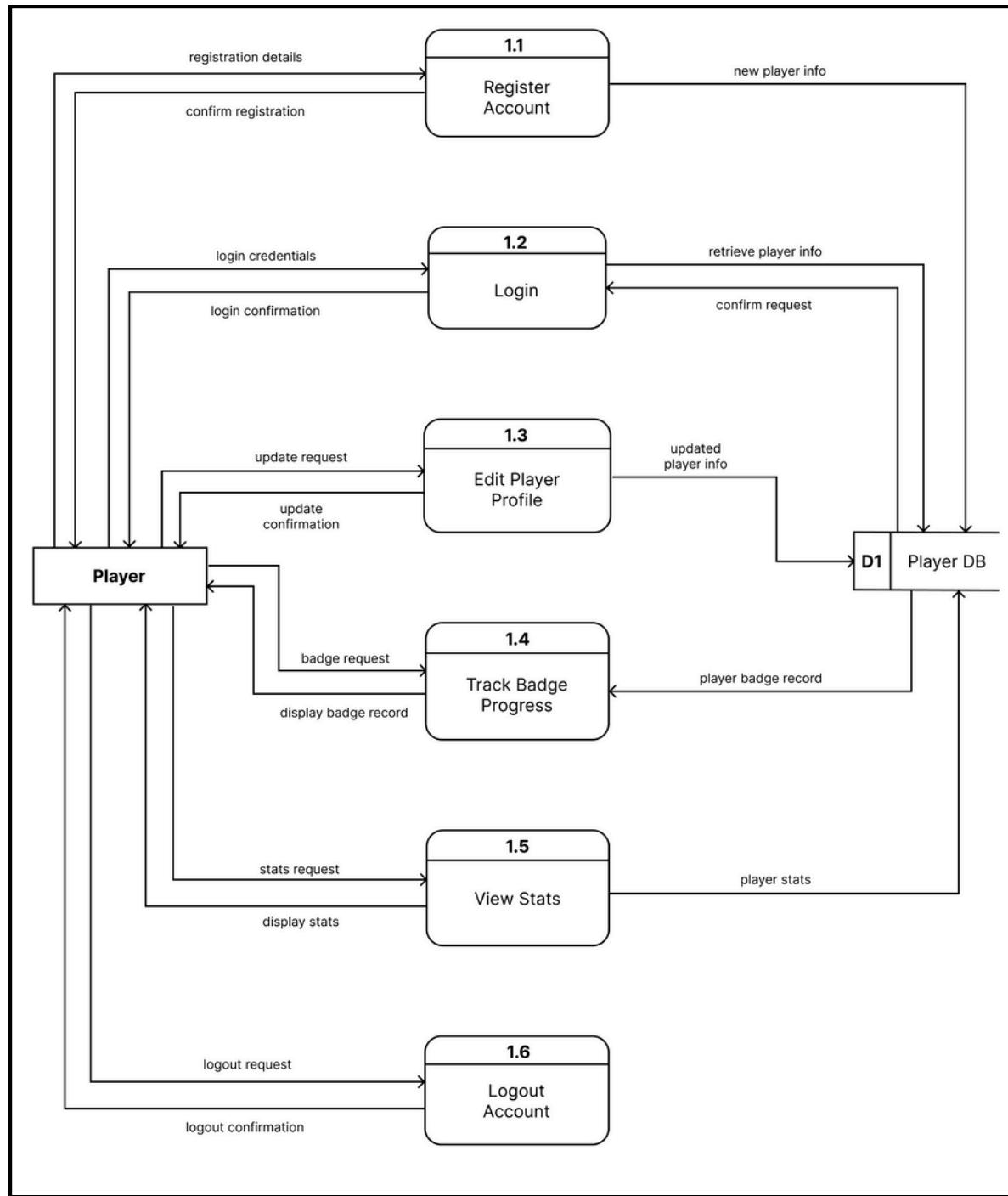
Level 1



Janice Salipande

Level 2

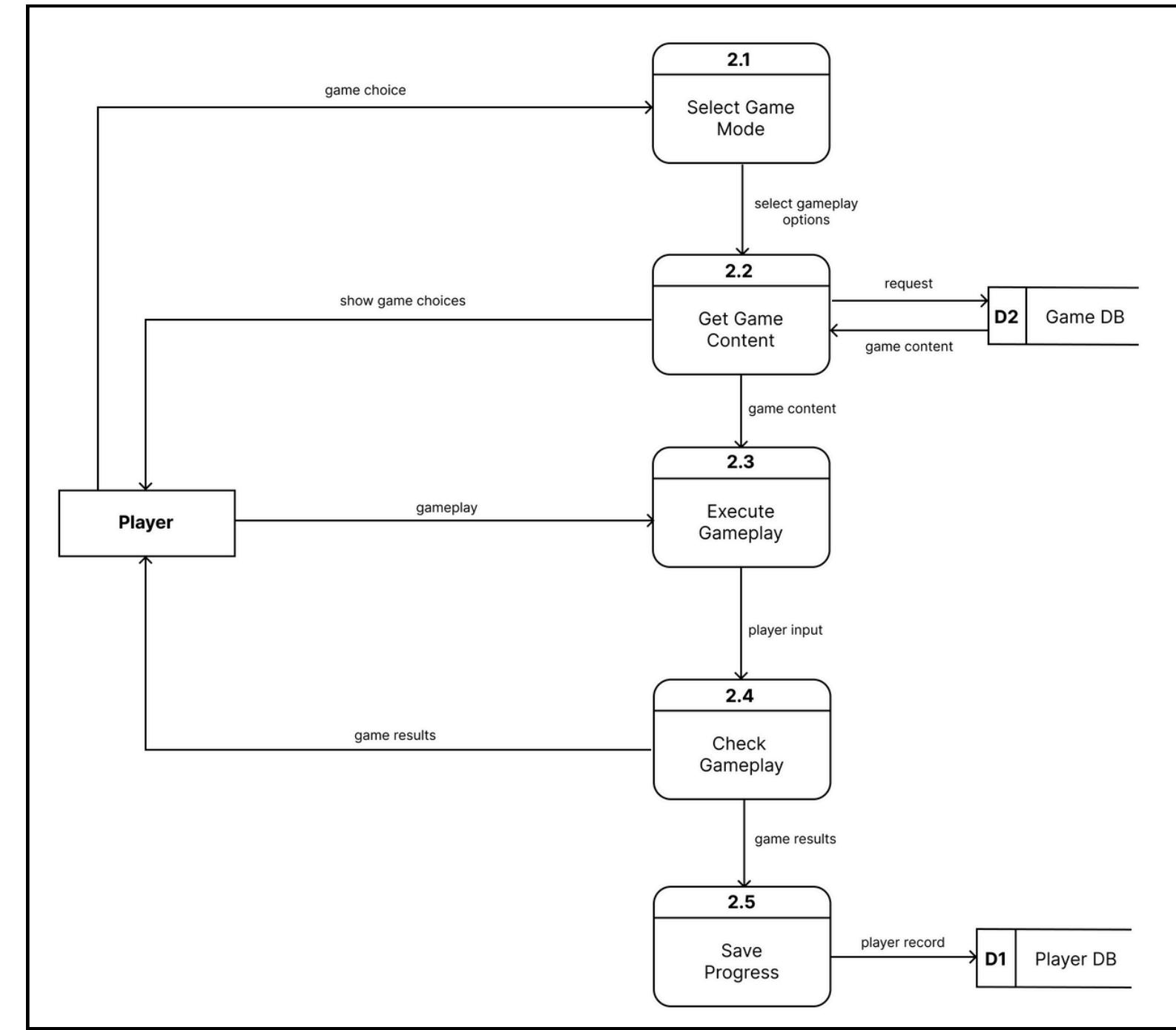
1.0 Manage Player Account



Janice Salipande

Level 2

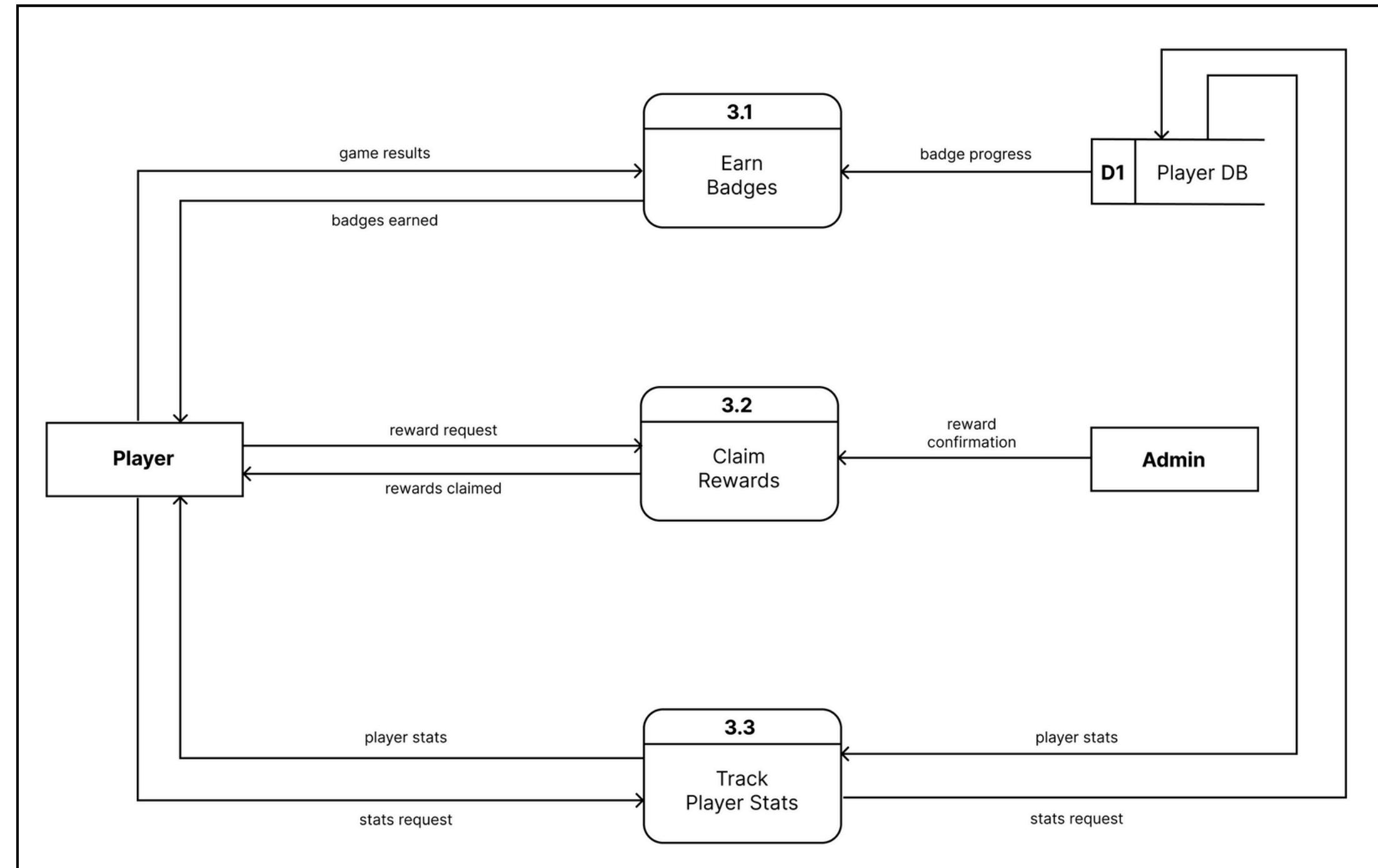
2.0 Play Games



Janice Salipande

Level 2

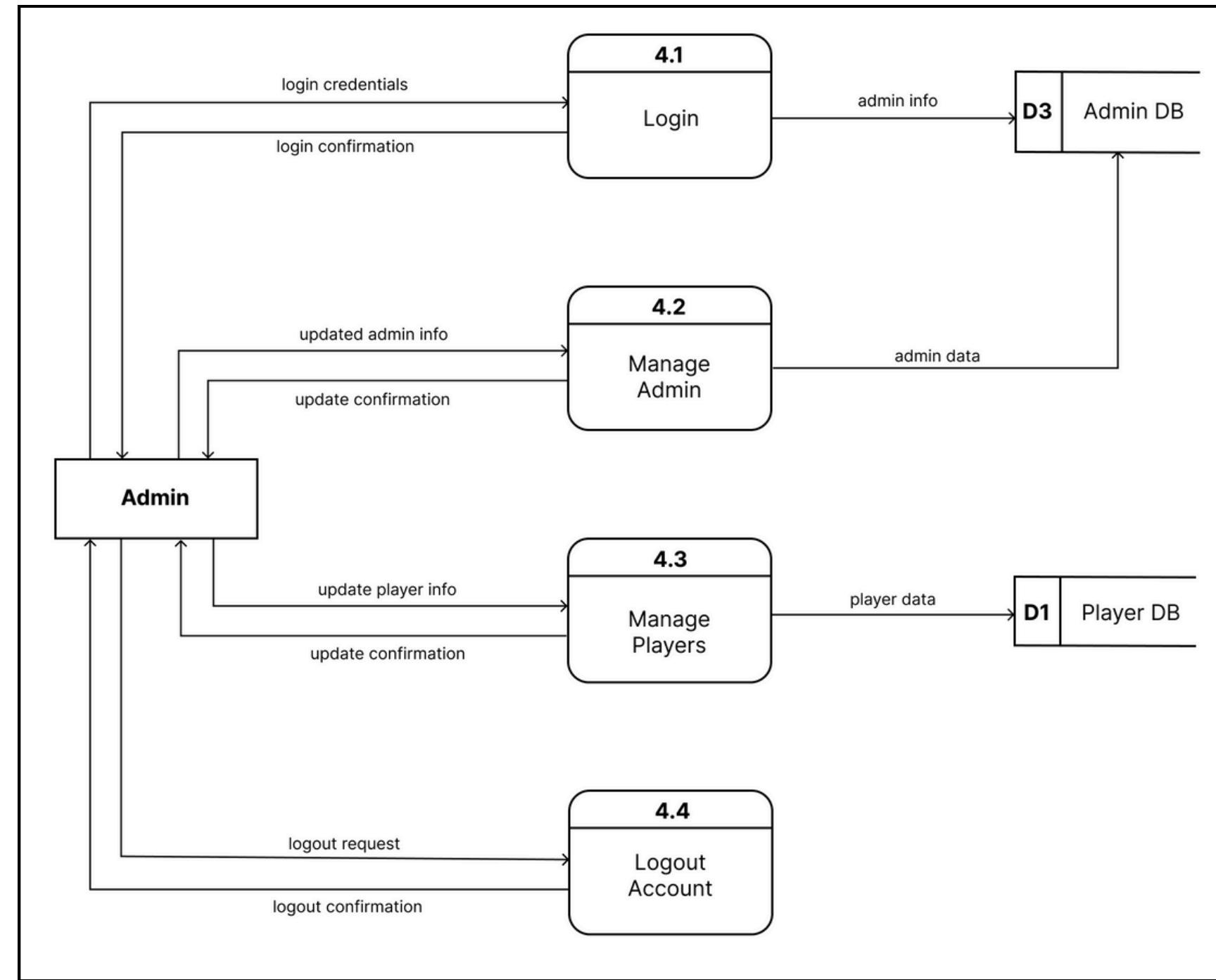
3.0 View Stats and Badges



Janice Salipande

Level 2

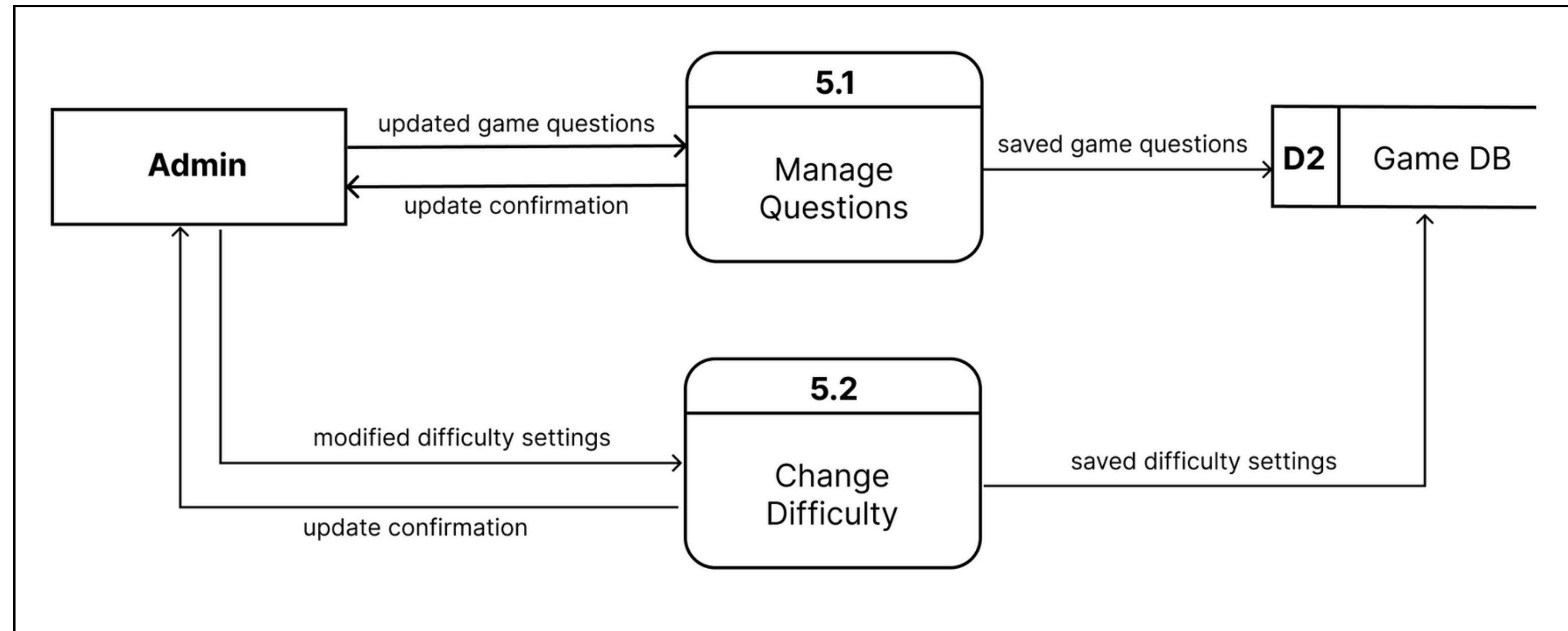
4.0 Manage Admin Account



Janice Salipande

Level 2

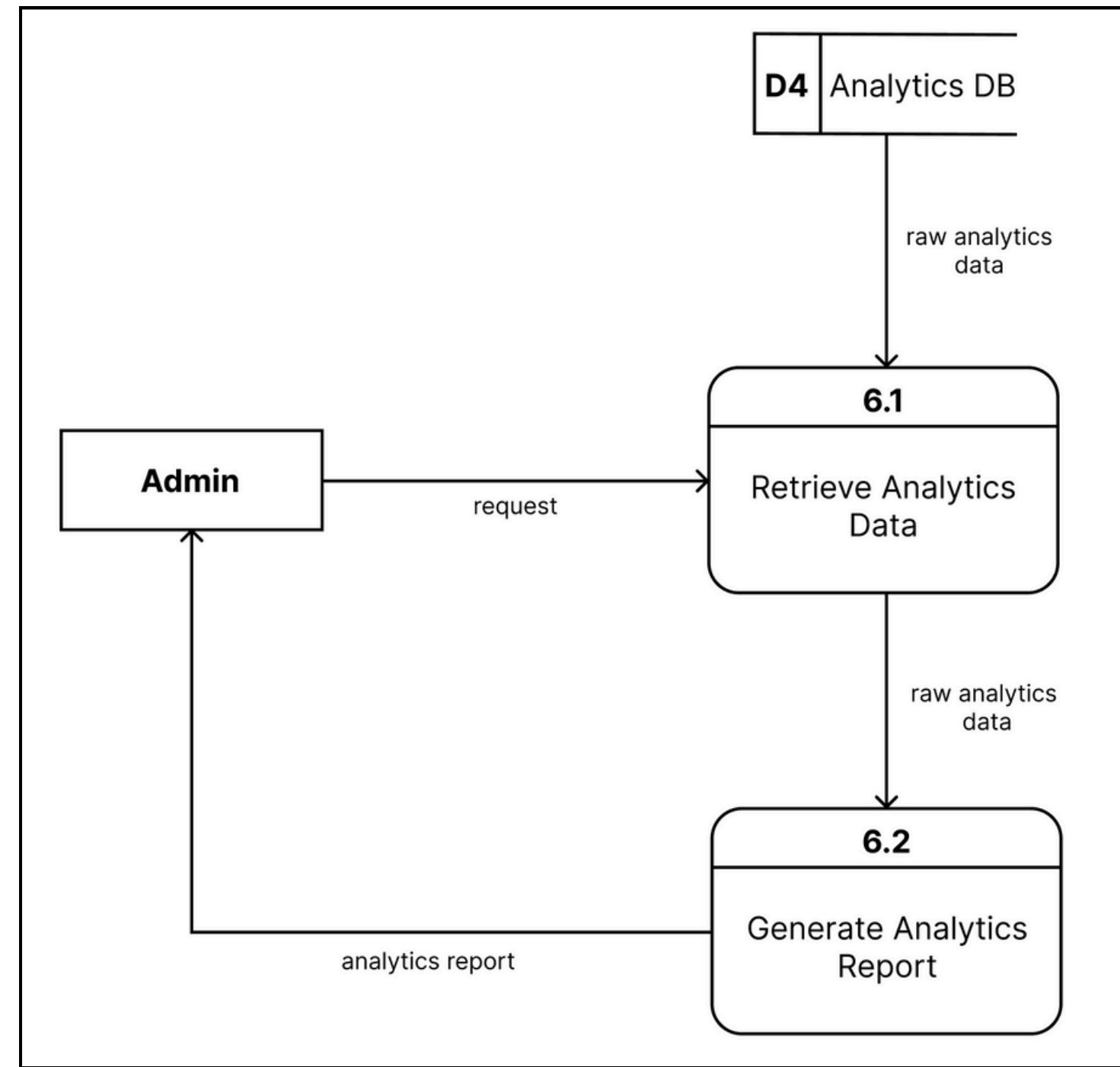
5.0 Manage Quiz Game



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Level 2

6.0 View Analytics

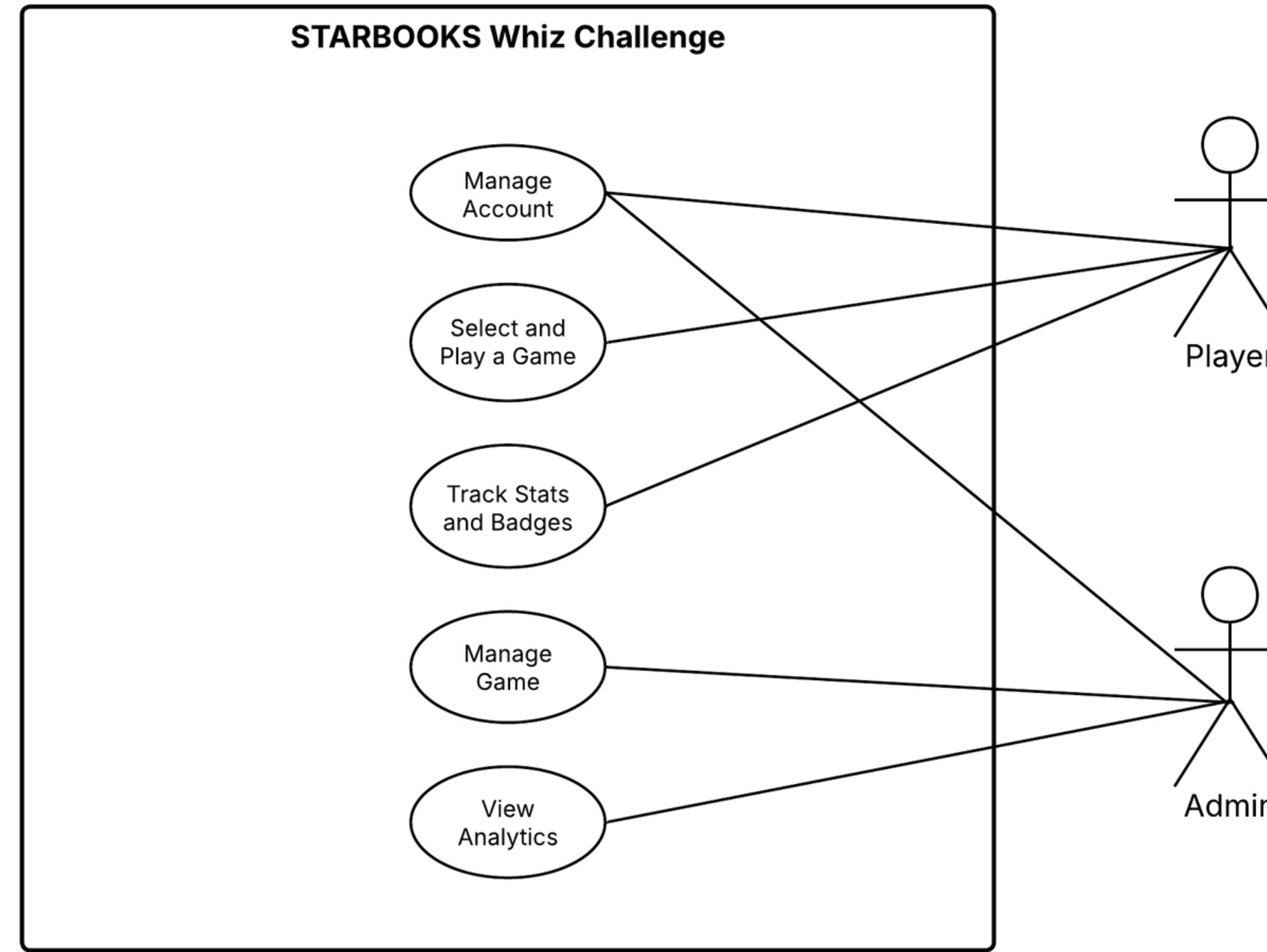


Janice Salipande

Use Case Diagram



Use Case Diagram



Janice Salipande

OpenProject



Initial Budgets

1. INITIATION PHASE

1. Initiation Phase Budget
Added by Shandrae Lois Quianzon 16 days ago. Updated about 1 hour ago.

Cost type: Budget
Fixed date: 08/29/2025
Spent (ratio):  7% Total progress

Description: The Initiation Phase budget covers all essential costs required to formally start the STARBOOKS Whiz Challenge project for DOST-STII. This includes expenses for setting up the initial work environment, conducting the kick-off meeting, and preparing the necessary tools, materials, and resources to define the project scope and objectives.

UNITS

| Planned unit costs | | | | Actual unit costs | | | |
|--------------------|-------------------------------------|-----------------------------------|--------------|--|-------|---------------------------------|------------|
| UNITS | COST TYPE | COMMENT | BUDGET | WORK PACKAGE | UNITS | COST TYPE | COSTS |
| 1.00 | Cloud Services Monthly Subscription | One Drive 100GB storage | PHP 100.00 | Task #370: 1.0.1 Prospective Client Discovery | 2.00 | Transportation expenses Php 100 | PHP 200.00 |
| 1.00 | Office Supplies Php100 | Bond Papers for Printing of Forms | PHP 100.00 | Task #371: 1.0.2 Finalize choice of IIP/PBL Client | 2.00 | Transportation expenses Php 100 | PHP 200.00 |
| 8.00 | Transportation expenses Php 100 | Travel to DOST-STII | PHP 800.00 | Task #365: 1.1 Design Thinking Stage 1: Empathize | 2.00 | Contingency Reserve | PHP 200.00 |
| | | | PHP 1,000.00 | | | | PHP 600.00 |

LABOR

| Planned labor costs | | | | Actual labor costs | | | |
|---------------------|----------------------------|---|---------------|--|-------------|----------------------------|--------------|
| HOURS | USER | COMMENT | BUDGET | WORK PACKAGE | HOURS | USER | COSTS |
| 100.00 hours | KD Kelly Dumbrique | Contribution to Transportation Costs for DOST-STII Visits | PHP 10,000.00 | Task #365: 1.1 Design Thinking Stage 1: Empathize | 20.00 hours | JS Janice Maxene Salipande | PHP 2,000.00 |
| 100.00 hours | AG Arcielle Gercan | Contribution to Transportation Costs for DOST-STII Visits | PHP 10,000.00 | Task #376: 1.2.4 Create Stakeholder Analysis | 2.00 hours | AG Arcielle Gercan | PHP 0.00 |
| 100.00 hours | SQ Shandrae Lois Quianzon | Contribution to Transportation Costs for DOST-STII Visits | PHP 10,000.00 | Task #375: 1.2.3 Create Scope | 2.00 hours | JS Janice Maxene Salipande | PHP 0.00 |
| 100.00 hours | JS Janice Maxene Salipande | Contribution to Transportation Costs for DOST-STII Visits | PHP 10,000.00 | Task #370: 1.0.1 Prospective Client Discovery | 10.00 hours | KD Kelly Dumbrique | PHP 0.00 |
| | | | PHP 40,000.00 | Task #371: 1.0.2 Finalize choice of IIP/PBL Client | 5.00 hours | KD Kelly Dumbrique | PHP 0.00 |
| | | | | Task #373: 1.2.1 Create Charter | 2.00 hours | KD Kelly Dumbrique | PHP 200.00 |



Arcielle Gercan

Initial Budgets

2. PLANNING PHASE

2. Planning Budget Phase

Added by Arcielle Gercan 16 days ago. Updated 15 days ago.

Cost type

Budget

Fixed date

08/13/2025

Spent (ratio)

 8% Total progress

Description

The Planning Phase budget provides the resources needed to design, organize, and finalize the development plan for the STARBOOKS Whiz Challenge project.

UNITS

Planned unit costs

| UNITS | COST TYPE | COMMENT | BUDGET |
|-------|-------------------------------------|------------------------------|--------------|
| 1.00 | Cloud Services Monthly Subscription | One Drive 100GB storage | PHP 100.00 |
| 5.00 | Food Allowance | Snacks & drinks for meetings | PHP 500.00 |
| 8.00 | Transportation expenses Php 100 | Travel to DOST-STII | PHP 800.00 |
| 4.00 | Miscellaneous Php100 | Mobile data load for devices | PHP 400.00 |
| | | | PHP 1,800.00 |

Actual unit costs

| WORK PACKAGE | UNITS | COST TYPE | COSTS |
|--------------|-------|-----------|----------|
| | | | PHP 0.00 |

LABOR

Planned labor costs

| HOURS | USER | COMMENT | BUDGET |
|--------------|---|---------|---------------|
| 100.00 hours |  Arcielle Gercan | | PHP 10,000.00 |
| 100.00 hours |  Janice Maxene Salipande | | PHP 10,000.00 |
| 100.00 hours |  Kelly Dumbrique | | PHP 10,000.00 |
| 100.00 hours |  Shandrae Lois Quianzon | | PHP 10,000.00 |
| | | | PHP 40,000.00 |

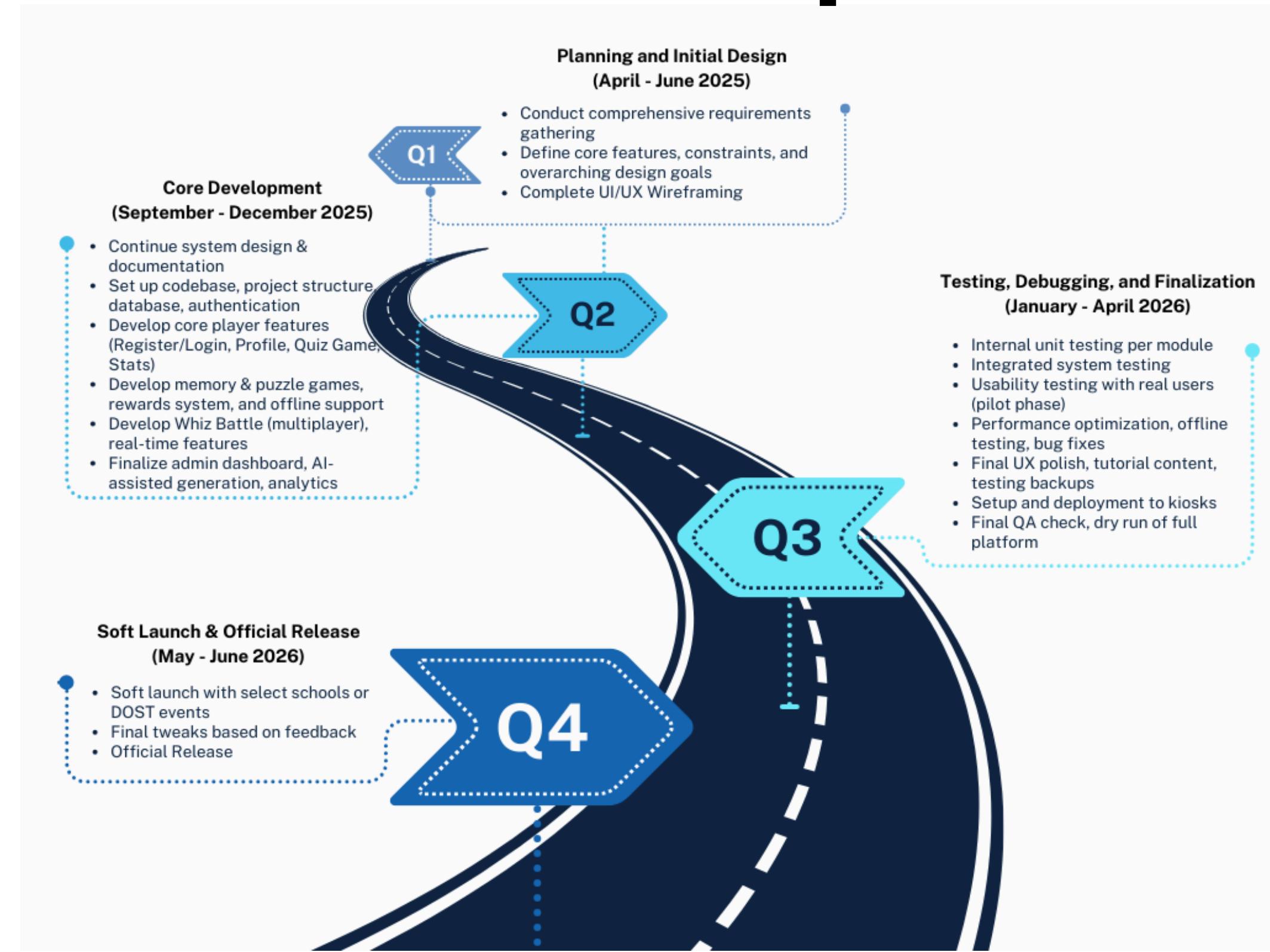
Actual labor costs

| WORK PACKAGE | HOURS | USER | COSTS |
|---|------------|---|------------|
| Task #307: 2.3.1.2.1 Dataflow Diagram Level 2.1 Manage Pl... | 3.00 hours |  Shandrae Lois Quianzon | PHP 300.00 |
| Task #308: 2.3.1.2.2 Dataflow Diagram Level 2.2 Play Games | 3.00 hours |  Arcielle Gercan | PHP 300.00 |
| Task #304: 2.3.1.2 Dataflow Diagram Level 1 | 3.00 hours |  Janice Maxene Salipande | PHP 300.00 |
| Task #1721: 2.3.1.2.3 Dataflow Diagram Level 2.3 View Stat... | 3.00 hours |  Arcielle Gercan | PHP 300.00 |
| Task #1723: 2.3.1.2.4 Dataflow Diagram Level 2.4 Manage ... | 3.00 hours |  Kelly Dumbrique | PHP 300.00 |
| Task #1013: 2.3.1.2.6 Dataflow Diagram Level 2.6 View Anal... | 3.00 hours |  Janice Maxene Salipande | PHP 300.00 |



Arcielle Gercan

Roadmap



Arcielle Gercan

Roadmap

1. PLANNING AND DESIGN

1 - Planning and Design
Defining project goals, gathering requirements, and designing the system through diagrams and wireframes.

64% Total progress
25 closed (64%) 14 open (36%)

RELATED WORK PACKAGES

- [Phase #343: 1.0 Initiation Phase](#)
- [Phase #344: 2.0 Planning Phase](#)
- [Phase #345: 3.0 Executing Phase](#)
- [Task #365: 1.1 Design Thinking Stage 1: Empathize](#)
- [Task #367: 3.1 Design Thinking Stage 4: Prototype](#)
- [Task #368: 3.2 Design Thinking Stage 5: Test](#)
- [Task #370: 1.0.1 Prospective Client Discovery](#)
- [Task #371: 1.0.2 Finalize choice of IIP/PBL Client](#)
- [Task #373: 1.2.1 Create Charter](#)
- [Task #374: 1.2.2 Create Objectives](#)
- [Task #375: 1.2.3 Create Scope](#)
- [Task #376: 1.2.4 Create Stakeholder Analysis](#)
- [Task #383: 2.3.1.1 Context Diagram](#)
- [Task #384: 2.3.1.2 Dataflow Diagram Level 1](#)
- [Task #387: 2.3.1.2.1 Dataflow Diagram Level 2.1 Manage Player Account](#)
- [Task #388: 2.3.1.2.2 Dataflow Diagram Level 2.2 Play Games](#)
- [Task #391: 2.3.2.1.1 Test Case for Use Case 2.3.2.1.1](#)
- [Task #392: 2.3.2.1.2 Test Case for Use Case 2.3.2.1.1](#)
- [Task #393: 2.3.2.1.0 Activity Diagram with Swimlanes for Use Case 2.3.2.1.1](#)
- [Task #394: 2.3.1.2.3 Dataflow Diagram Level 2.3 View Stats and Badges](#)
- [Task #395: 2.3.1.2.4 Dataflow Diagram Level 2.4 Manage Admin Account](#)
- [Task #396: 2.3.1.2.5 Dataflow Diagram Level 2.5 Manage Quiz Game](#)
- [Task #397: 2.3.1.2.6 Dataflow Diagram Level 2.6 View Analytics](#)

2. DEVELOPMENT

2 - Development
Building the core system features and integrating modules based on the design.

0% Total progress
0 closed (0%) 57 open (100%)

RELATED WORK PACKAGES

- [Task #386: 3.1.1.1 Task 01](#)
- [Task #1669: 3.4.1.1.1 Implement registration form](#)
- [Task #1670: 3.4.1.1.2 Implement login system](#)
- [Task #1671: 3.4.1.1.3 Validate inputs & error handling](#)
- [Task #1672: 3.4.1.1.4 Store and retrieve credentials securely](#)
- [Task #1674: 3.4.1.2.1 Create profile page layout](#)
- [Task #1675: 3.4.1.2.2 Implement profile editing functionality](#)
- [Task #1676: 3.4.1.2.3 Display basic player details](#)
- [Task #1678: 3.4.1.3.1 Develop quiz game logic](#)
- [Task #1679: 3.4.1.3.2 Build UI for question and answer display](#)
- [Task #1684: 3.4.2.1.1 Develop memory game logic](#)
- [Task #1685: 3.4.2.1.2 Design game board and card UI](#)
- [Task #1687: 3.4.2.2.1 Develop puzzle game logic](#)
- [Task #1688: 3.4.2.2.2 Create puzzle categories and difficulty levels](#)
- [Task #1690: 3.4.2.3.1 Design badge icons and UI layout](#)
- [Task #1691: 3.4.2.3.2 Implement badge unlocking logic](#)
- [Task #1692: 3.4.2.3.3 Update badge display dynamically after achievements](#)
- [Task #1695: 3.4.3.1.1 Build lobby system](#)
- [Task #1696: 3.4.3.1.2 Implement matchmaking and room creation](#)
- [Task #1697: 3.4.3.1.3 Develop real-time quiz synchronization](#)
- [Task #1698: 3.4.3.1.4 Show results and winner after each match](#)
- [Task #1700: 3.4.3.2.1 Implement in-game notifications](#)
- [Task #1701: 3.4.3.2.2 Add live updates for scores and progress](#)
- [Task #1702: 3.4.3.2.3 Optimize system for low-latency connections](#)
- [Task #1704: 3.4.3.3.1 Track performance across all game modes](#)
- [Task #1705: 3.4.3.3.2 Store and update earned stars](#)
- [Task #1706: 3.4.3.3.3 Display overall performance stats in player profile](#)
- [Task #1707: 3.4.3.3.4 Integrate stats with badges earned display](#)
- [Task #1710: 3.4.4.1.1 Implement player account list and search](#)
- [Task #1711: 3.4.4.1.2 Manage admin roles and access levels](#)
- [Task #1713: 3.4.4.2.1 Add/update/delete quiz questions](#)
- [Task #1715: 3.4.4.3.1 Integrate AI for auto-generating quiz questions](#)
- [Task #1716: 3.4.4.3.2 Test and refine AI outputs for accuracy](#)



Arcielle Gercan

Work Package

Parent: 2.0 Planning Phase X

SUMMARY TASK 2.3 Requirements and Analysis Design Diagrams

Closed #369: Created by Joe Gene Quesada APC. Last updated on 08/29/2025 11:46 AM.

| | |
|---------------------|---|
| WBS: | 2.3 |
| Work Package: | Requirements and Analysis Design Diagrams |
| Package Owner: | G06 NEXUS |
| Owner Organization: | DOST-STII |
| Participants: | <ul style="list-style-type: none">Kelly Dumbrique (3 hrs)Arcielle Marie Gercan (3 hrs)Shandrae Lois Quianzon (3 hrs)Janice Maxene Salipande (3 hrs) |
| Description: | Preparing the requirements and analysis design diagrams that define the STARBOOKS Whiz Challenge system. It includes the creation of Data Flow Diagrams (DFDs), Use Case Models and Descriptions, and the Entity-Relationship Diagram (ERD). These diagrams will serve as the system's functional and data blueprint, ensuring that both client needs and technical requirements are fully represented. (Currently, the team is working on the Data Flow Diagrams as the first sub-task.) |
| Completion State: | Data Flow Diagrams (Levels 0, 1, and 2) are done. |
| Assumptions: | <ul style="list-style-type: none">Client requirements from previous stages are sufficient to build accurate diagrams.Team members are familiar with diagramming tools. |
| Risks: | <ul style="list-style-type: none">Misinterpretation of requirements may lead to inaccurate system diagrams.Inconsistencies across DFDs, Use Cases, and ERD may cause design conflicts. |
| Risk Mitigation: | <ul style="list-style-type: none">Conduct regular team reviews to validate diagrams against requirements.Cross-check diagrams with adviser feedback to ensure consistency. |
| Budget: | PHP 0 |
| Reference Docs: | |

PEOPLE

| | | | |
|----------|--|--------------|---|
| Assignee |  Shandrae Lois Quianzon | Responsible* |  Kelly Dumbrique |
| | | |  Janice Maxene Salipande |
| | | |  Arcielle Marie Gercan |

Accountable  Kelly Dumbrique

ESTIMATES AND PROGRESS

| | | | |
|------------|---------------|----------------|---|
| Work | - · Σ 24h | Remaining work | - · Σ 0h |
| % Complete | 100% · Σ 100% | Spent time | 24h  |

DETAILS

| | | | |
|---------------|--|----------|-------------------------|
| Priority * | <input checked="" type="radio"/> Normal | Date | 08/18/2025 - 08/26/2025 |
| Project phase |  Planning | Category | Documentation |
| Version | 1 - Planning and Design | | |

COSTS

| | | | |
|-------------|--------------------------|---------------|--------------|
| Spent units | - | Labor costs | PHP 2,400.00 |
| Unit costs | - | Overall costs | PHP 2,400.00 |
| Budget | 2. Planning Budget Phase | | |



Arcielle Gercan

Boards

1. INITIATION PHASE

OpenProject / APC_2025_2026_T1_MI232_G06 NEXUS DOST: STARBOOKS Whiz Challenge / Boards / Public: 01 Initiation Phase

01 Initiation Phase

| To Do | Doing | For Review | Done |
|---|---|--|---|
| + + | + + | + + | + + |
| <div style="border: 1px solid #ccc; padding: 5px;">Closed #377 - APC_2025_2026_T1... 1.2.5 PM Foundations Ch 2 Initiate a project Completed </div> | <div style="border: 1px solid #ccc; padding: 5px;">Closed #365 - APC_2025_2026_T1... 1.1 Design Thinking Stage 1: Empathize Apr 30, 2025 - Aug 14, 2025</div> | <div style="border: 1px solid #ccc; padding: 5px;">Closed #371 - APC_2025_2026_T1... 1.0.2 Finalize choice of IIP/PBL Client Apr 23, 2025 - Apr 30, 2025</div> | <div style="border: 1px solid #ccc; padding: 5px;">Closed #370 - APC_2025_2026_T1... 1.0.1 Prospective Client Discovery Mar 31, 2025 - Apr 30, 2025</div> |
| <div style="border: 1px solid #ccc; padding: 5px;">Closed #343 - APC_2025_2026_T1... 1.0 Initiation Phase Mar 31, 2025 - Aug 14, 2025</div> | | | |

2. PLANNING PHASE

OpenProject / APC_2025_2026_T1_MI232_G06 NEXUS DOST: STARBOOKS Whiz Challenge / Boards / Public: 02 Planning Phase

02 Planning Phase

| To Do | Doing | For Review | Done |
|---|-------|------------|--|
| + + | + + | + + | + + |
| <div style="border: 1px solid #ccc; padding: 5px;">To be sched... #380 - APC_2025_2026_T1... SUMMARY TASK 2.3.3 Entity Relationship Diagrams </div> | | | <div style="border: 1px solid #ccc; padding: 5px;">Closed #366 - APC_2025_2026_T1... SUMMARY TASK 2.2 Design Thinking Stage 3: Ideate Apr 30, 2025 - Aug 29, 2025</div> |
| | | | <div style="border: 1px solid #ccc; padding: 5px;">Closed #348 - APC_2025_2026_T1... SUMMARY TASK 2.1 Design Thinking Stage 2: Define Apr 30, 2025 - Aug 29, 2025</div> |
| | | | <div style="border: 1px solid #ccc; padding: 5px;">Closed #387 - APC_2025_2026_T1... TASK 2.3.1.2 Dataflow Diagram Level 2.1 Manage Player Account Aug 18, 2025 - Aug 26, 2025</div> |
| | | | <div style="border: 1px solid #ccc; padding: 5px;">Closed #383 - APC_2025_2026_T1... TASK 2.3.1.1 Context Diagram Aug 18, 2025 - Aug 26, 2025</div> |
| | | | <div style="border: 1px solid #ccc; padding: 5px;">Closed #384 - APC_2025_2026_T1... TASK 2.3.1.2 Dataflow Diagram Level 1 Aug 18, 2025 - Aug 26, 2025</div> |
| | | | <div style="border: 1px solid #ccc; padding: 5px;">Closed #1813 - APC_2025_2026_T1... TASK 2.3.1.2.6 Dataflow Diagram Level 2.6 View Analytics Aug 18, 2025 - Aug 26, 2025</div> |



Arcielle Gercan

Backlogs

OpenProject / APC_2025_2026_T1_MI232_G06 NEXUS DOST: STARBOOKS Whiz Challenge / Backlogs

Backlogs

| 2 - Development | | 0 |
|-----------------|--|-----|
| 350 | Epic: 3.3 Epic 01 | New |
| 372 | User story: 3.1.1 User Story 01 | New |
| 382 | Feature: 3.1.1.1 Feature 01 | New |
| 1666 | Epic: 3.4 Development | New |
| 1667 | User story: 3.4.1 Core Player Features | New |
| 1668 | Feature: 3.4.1.1 Registration & Login | New |
| 1673 | Feature: 3.4.1.2 Player Profile | New |
| 1677 | Feature: 3.4.1.3 Whiz Challenge Game Mode | New |
| 1682 | User story: 3.4.2 Whiz Memory Match, Whiz Puzzle, and Badges Display | New |
| 1683 | Feature: 3.4.2.1 Whiz Memory Match Game Mode | New |
| 1686 | Feature: 3.4.2.2 Whiz Puzzle Game Mode | New |
| 1689 | Feature: 3.4.2.3 Badges Earned Display | New |
| 1693 | User story: 3.4.3 Whiz Battle, Real-Time Features, and Player Statistics | New |
| 1694 | Feature: 3.4.3.1 Whiz Battle Game Mode | New |
| 1699 | Feature: 3.4.3.2 Real-Time Features | New |
| 1703 | Feature: 3.4.3.3 Player Statistics | New |
| 1708 | User story: 3.4.4 Admin Dashboard | New |
| 1709 | Feature: 3.4.4.1 User Management | New |
| 1712 | Feature: 3.4.4.2 Content Management | New |
| 1714 | Feature: 3.4.4.3 AI Tools Integration | New |
| 1717 | Feature: 3.4.4.4 Analytics Dashboard | New |



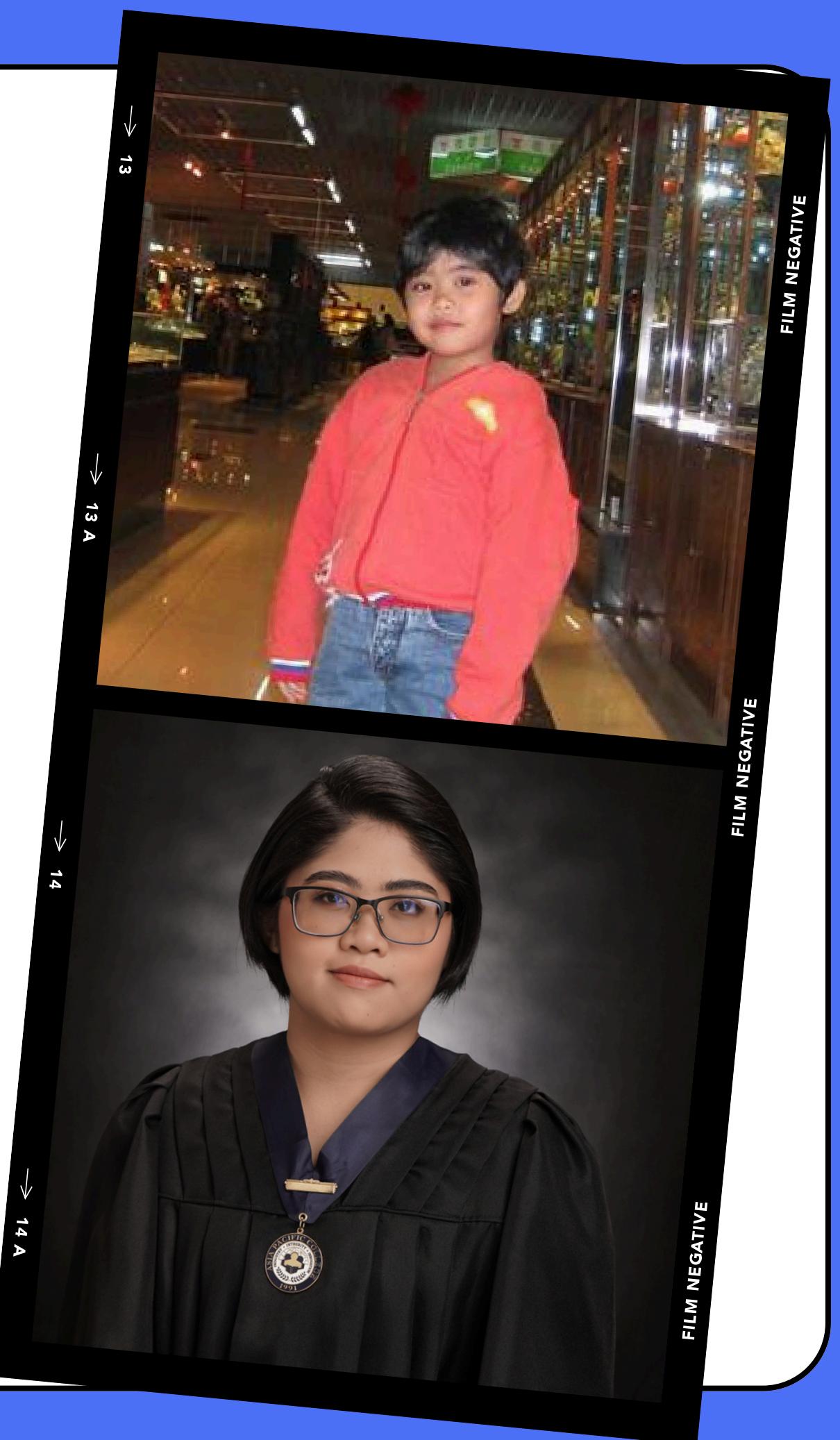
Arcielle Gercan

Individual Contributions



Kelly Dumbrique

- Leader, Project Manager
- Set up meetings with DOST-STII
- Prepared the Project Charter
- Design Thinking Activity:
 - Interview Questions
 - Pain-Gain Analysis
 - Crazy 8's
 - Storyboard
- Dataflow Diagrams:
 - Level 2 – 4.0 Manage Admin Account
 - Level 2 – 5.0 Manage Quiz Game



Arcielle Marie Gercan

- Prepared the Stakeholders Analysis
- Design Thinking Activity:
 - Personas and Empathy Maps for Chloe Ramirez and John Ray Santos
 - Crazy 8's
 - Storyboard
 - Wireframing and Prototyping
- Dataflow Diagrams:
 - Level 2 – 2.0 Play Games
 - Level 2 – 3.0 View Stats and Badges
- Prepared the Budgets in the OpenProject



Shandrae Lois Quianzon

- Prepared the Objectives
- Design Thinking Activity:
 - Personas and Empathy Maps for Mr. Carlo Mendoza and Ms. Liza De Vera
 - Crazy 8's
 - Storyboard
 - Wireframing and Prototyping
- Dataflow Diagrams:
 - Level 0 – Context Diagram
 - Level 2 – 1.0 Manage Player Account



Janice Maxene Salipande

- Lead of Documentation (Compiling and Formatting)
- Prepared the Scope
- Design Thinking Activity:
 - Personas and Empathy Maps for Ms. Marievic V. Narquita and Mr. McGyver C. Basaya
 - Crazy 8's
 - Storyboard
 - Wireframing and Prototyping
- Dataflow Diagrams:
 - Level 1
 - Level 2 – 6.0 View Analytics
- Organize the OpenProject site





Thank You!
GO6 NEXUS - SF231