GRIFFITH COLLEGE

Assignment Cover Sheet

Learner Name: Joshan John

Learner Number: 3092883

Faculty: Computing

Programme: BSCH Stage/Year: 4

Module: BSCH-MD

Study Mode: Full Time

Lecturer Name: Tracey Cassells

Assignment Title: Mobile Development – Milestone 1

Additional Relevant Information (e.g. number of pieces submitted etc.):

_____

AI in Learner Assessment Policy Indicate here applicable categories allowed for this assignment.	Category of AI Use	Allowed or not allowed
	No AI Use	No
	AI for Planning	No
	AI for Editing	No
	AI for Support Tasks	No
	AI for Collaboration	No
	Full AI Use	**(NOT ALLOWED)**

Academic Integrity Honour Code:

I submit this work in line with the principles of Academic Integrity as appearing in the Academic Integrity policy, the assessment description(s), and the relevant AI Assessment Scale in the AI in Learner Assessment

I affirm that I have not given or received any *unauthorised* help, from a person or through unauthorised content generation on this assignment, and that this work is my own.

I understand that penalties may be imposed if this assessment is in breach of the Academic Integrity and Misconduct policy.

Signature: Joshan John Date: 08/11/2025

Please note: Learners **MUST** retain a hard/soft copy of all assignments and must have the lecturer/member of Faculty acknowledge/sign as proof of submission.

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LUCKY WHEEL
Mobile Development – Milestone 1

Project Details

Project Name	Lucky Wheel
Sensor's Used	Accelerometer
Firebase Services	Authentication (email and password), Real-time Database
Data Preferences	Data Store (preference)
Fonts (Google Fonts)	Inter, Knewave, Merienda, Space Grotesk
GitHub Link	https://github.com/joshanjohn/luckywheel_3092883

Main Goal

Lucky Wheel is a gaming app. The main goal of the app is to have a competitive gameplay for collecting the gold by spinning a wheel using a mobile sensor. The spinning wheel will land the pointer on a random choice (arch) on the spinning wheel. The player can earn or lose gold by spinning the lucky wheel. The app shows Real-time data ranking for players with high gold count.

Objective: Milestone 1

- Build a user authentication and registration system using Firebase.
- Implement preference for auto login using the datastore preferences.
- Use an accelerometer sensor to spin the wheel and the stopping mechanism.
- Make the spinning of the wheel feel natural, so that it starts with a varying acceleration and ends with some natural, smooth friction.
- Implemented a gold scoring system and a real-time leaderboard.
- Implemented a navigable screen to switch between the gold wheel section and the custom game.
- Implement a custom wheel with varying percentages of pi size, with an option to edit wheel item properties.

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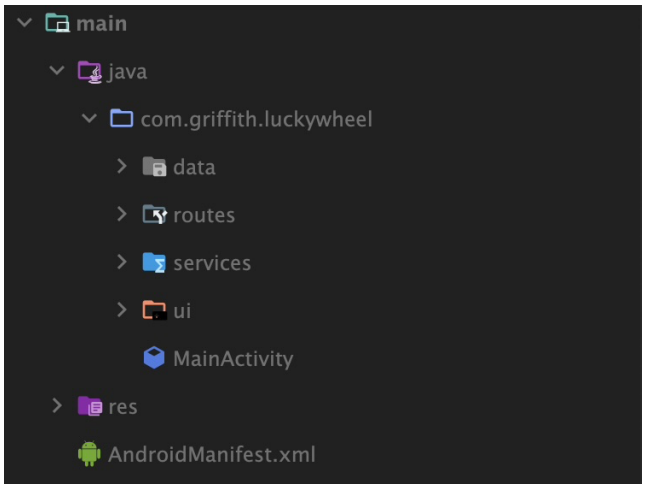
Project Architecture

The project is developed in an agile SDCL method. The project uses the Model View Controller (MVC) 3-level design architecture pattern.



All the model classes, defined as data classes in Kotlin, are organized within the data package. The services package contains all service and controller-related code, including the Firebase service, authentication service, and data store service. The UI elements, such as themes, screens, components, and UI logic, are placed in the UI package, along with the themes.

App UI Theme

The reason for choosing the current app UI theme is that it brings an arcade-playing feel. Just like a traditional red and black roulette wheel. For instance, in the gold collection game uses an alternative dark and light green colours, which mirrors the classic roulette wheel colouring pattern.

Some Key design considerations include:

- **Darker background**: Helps the user focus more on the spinning wheel while maintaining an immersive feel. The buttons also carry a green accent, maintaining visual consistency.
- **Interactive button design**: The press-and-hold button is circular, making it comfortable to use in any device orientation and reducing accidental touches. Additionally, the button changes to a light green shade when pressed, providing immediate visual feedback to the user.

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Colour Theme

The App uses the following colours for the app scaffold background colour, in a linear gradient fashion. For some elements, it has a golden yellow colour.

	Colour	Hex value
	darkGreenColor	0xFF0BA136
	darkerGreenColor	0xFF092609
	extraDarkerGreenColor	0x85071507
	lightGreenColor	0xFF20B652

Font Theme

The application uses the Google Fonts service for its typography. The primary fonts are **Inter (**Anon, n.d.), which is used for main UI text, body content, and labels, and **Space Grotesk** (Anon, n.d.), which is applied to secondary headings and highlighted sections.

For decorative titles and special headers, the app uses the **Knewave** (Anon, n.d.) font, while instructional text within the playground area is styled with **Merienda** (Anon, n.d.). These fonts are all sourced from Google Fonts.

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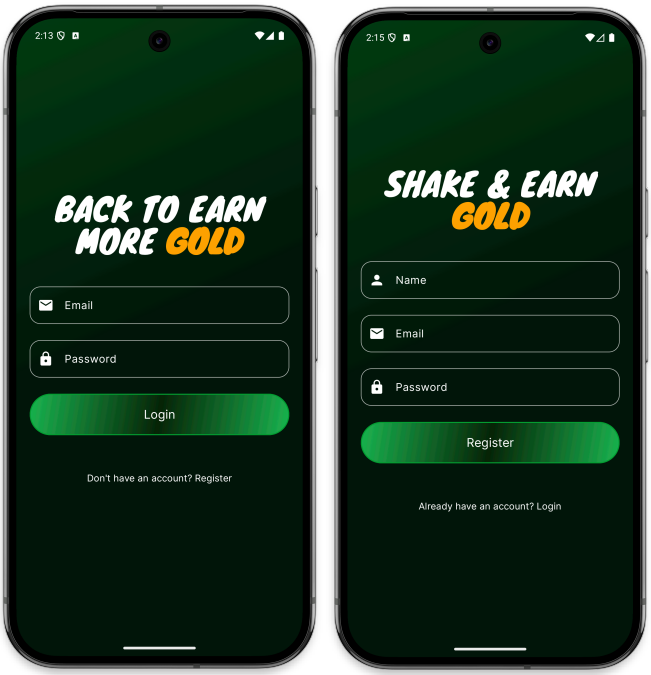
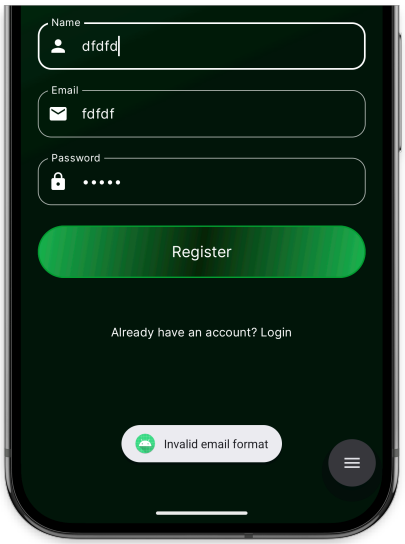
App UI Design

Authentication Screens

The app allows new user to register using their name, email, and a password. The existing user could log in. Once the player logs in, the login info will be stored in the data store as a preference, so next time when the user comes back after a pause or closing the app, the app will still be logged in.

Both the login and register text fields are sanitised and validated before authorization. Any validation error will be displayed as a toast at the bottom.





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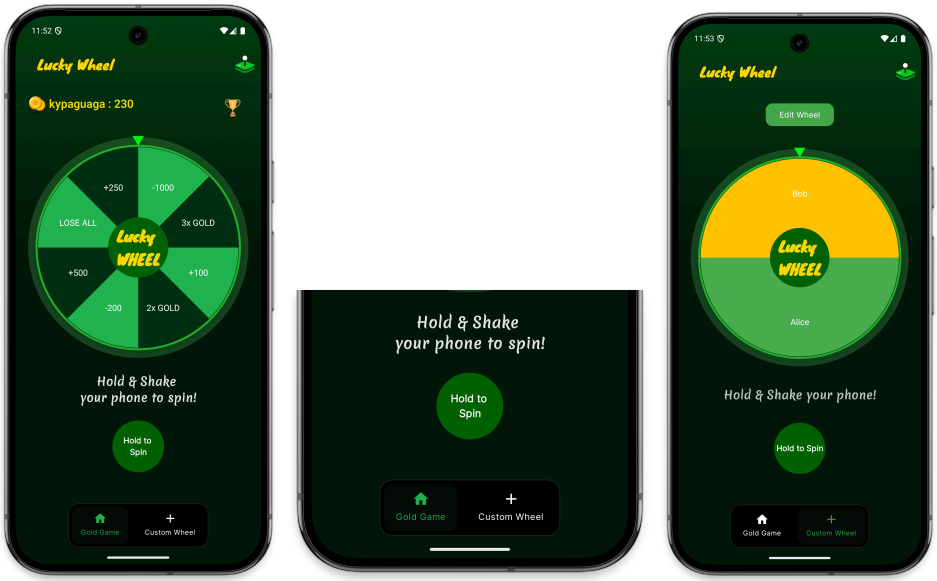
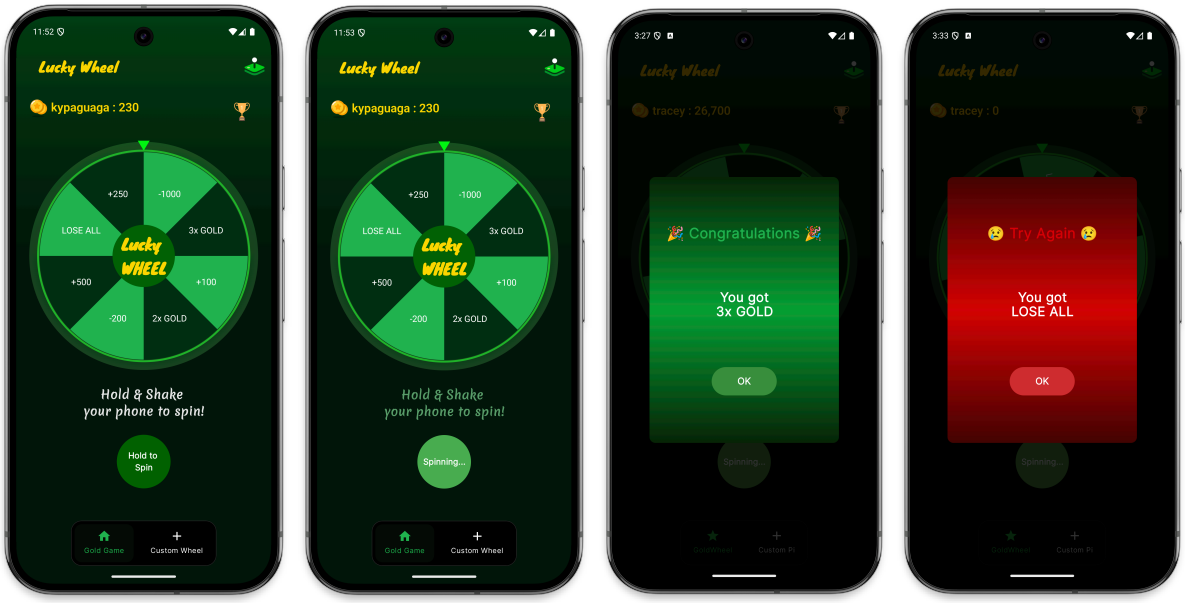
Playground Screens

Inside the playground, the player could switch between the gold game and the custom player spinning wheel game.



Gold Wheel Section

Player spins the lucky gold wheel by pressing and holding the green bottom button and shaking to spin the wheel. The spinning result shows as soon as the wheel stops as a pop-up window.



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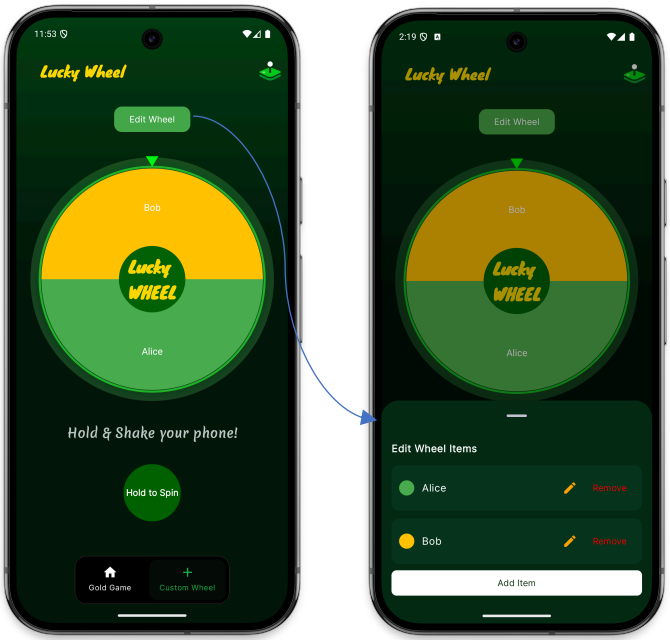
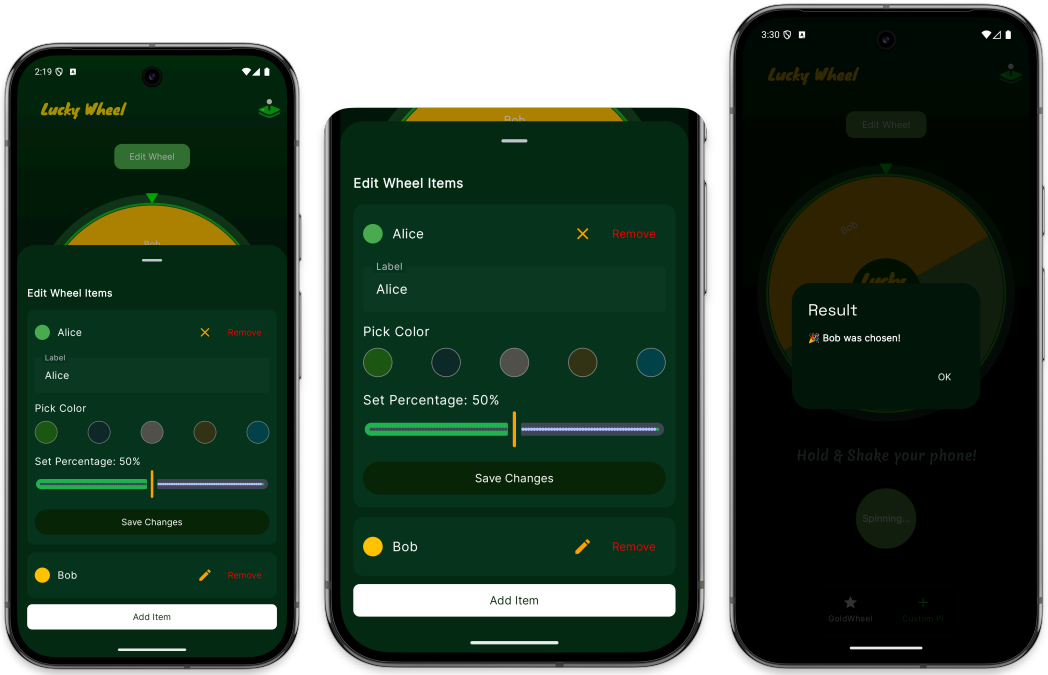
Custom Wheel Section

The player can use the same press and shake feature to spin the user-customizable wheel.



On clicking the "**Edit Wheel**" button, the user can add a new item to the pie and adjust the percentage of the pie. The user can also rename the label, edit the color. If needed user can also remove the item from the pie.



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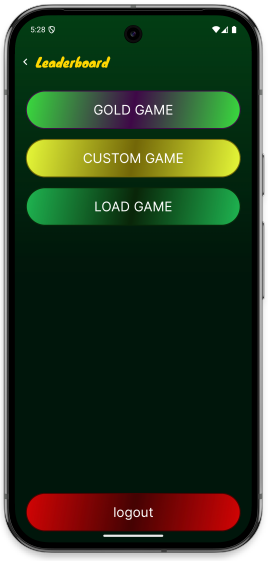
Leaderboard Screen

Players can view the top-ranked players by clicking the trophy icon.

Overall, the app has a green arcade-style theming with a golden splash on some UI components.

Settings Screen (In progress)

The settings Screens design and button are in progress, and can expect for milestone 2



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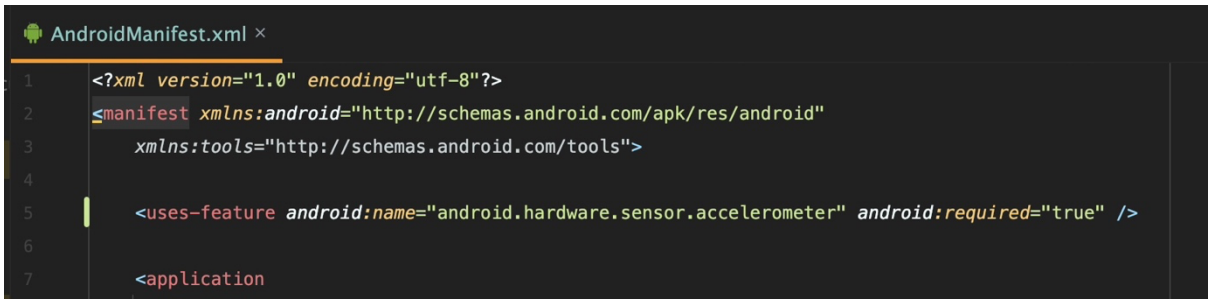
Declared the app uses the accelerometer mobile hardware sensor in the ***AndroidManifest.xml***, and it is required to run the application.



Backend Services

Currently, Firebase is primarily used as a backend service. This includes Firebase authentication for secure use, registration, and logins. Also, the application uses Firebase real-time database to fetch and store player info and gold count in real time with no delay.

Also uses the data store preferences (Anon, n.d.) for storing the basic player data if they logged in. It is used for the auto login feature, so that the user doesn't need to log in again after closing or pausing the application. It checks if there is any preference stored and redirects to the playground screen. If the player logs out, then all the datastore preferences are removed.

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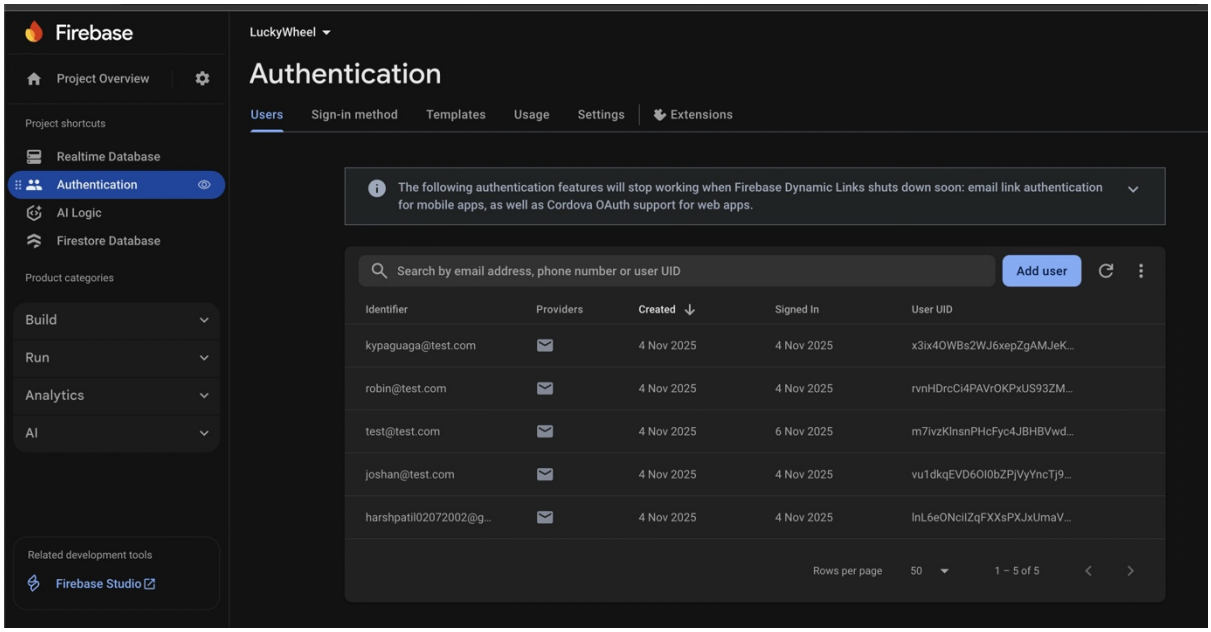

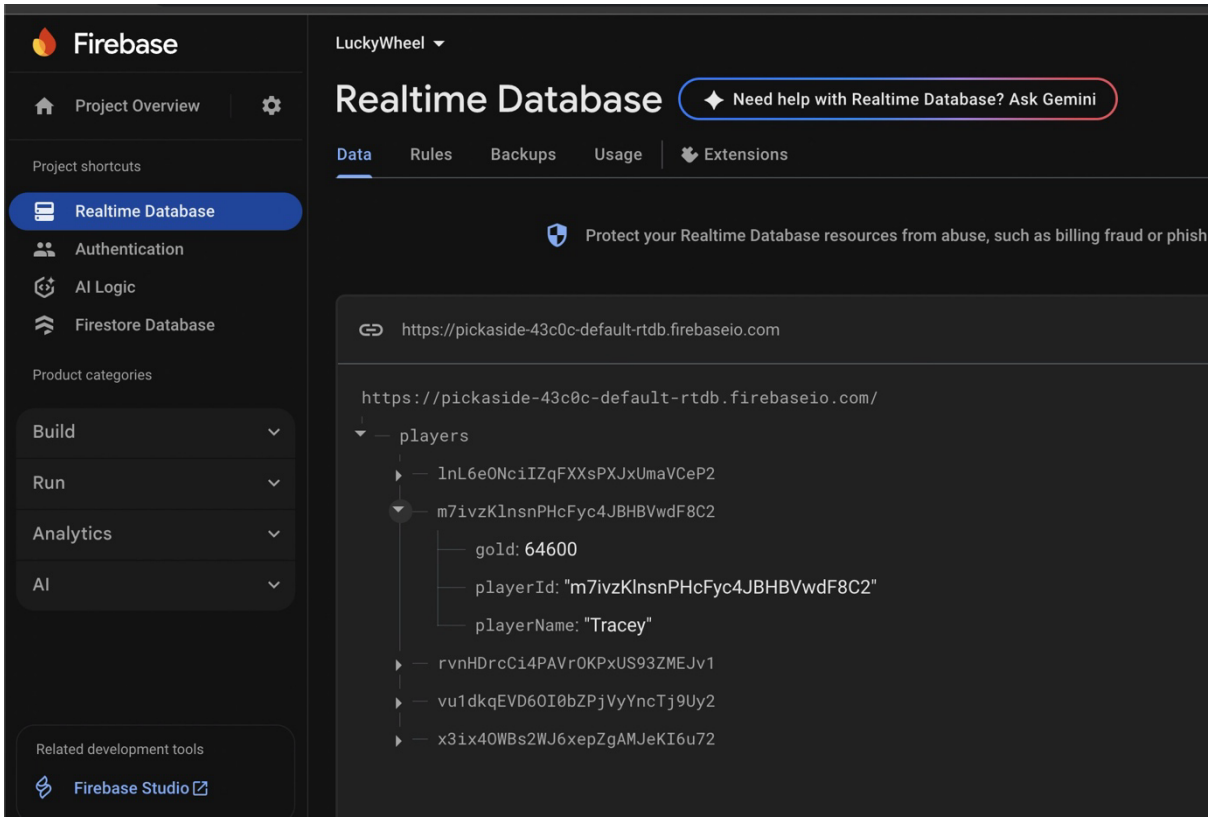

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