

# **INTELLICUP**

## **SYSTEM ARCHITECTURE SPECIFICATION**

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# OUTLINE

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MOCK-UP

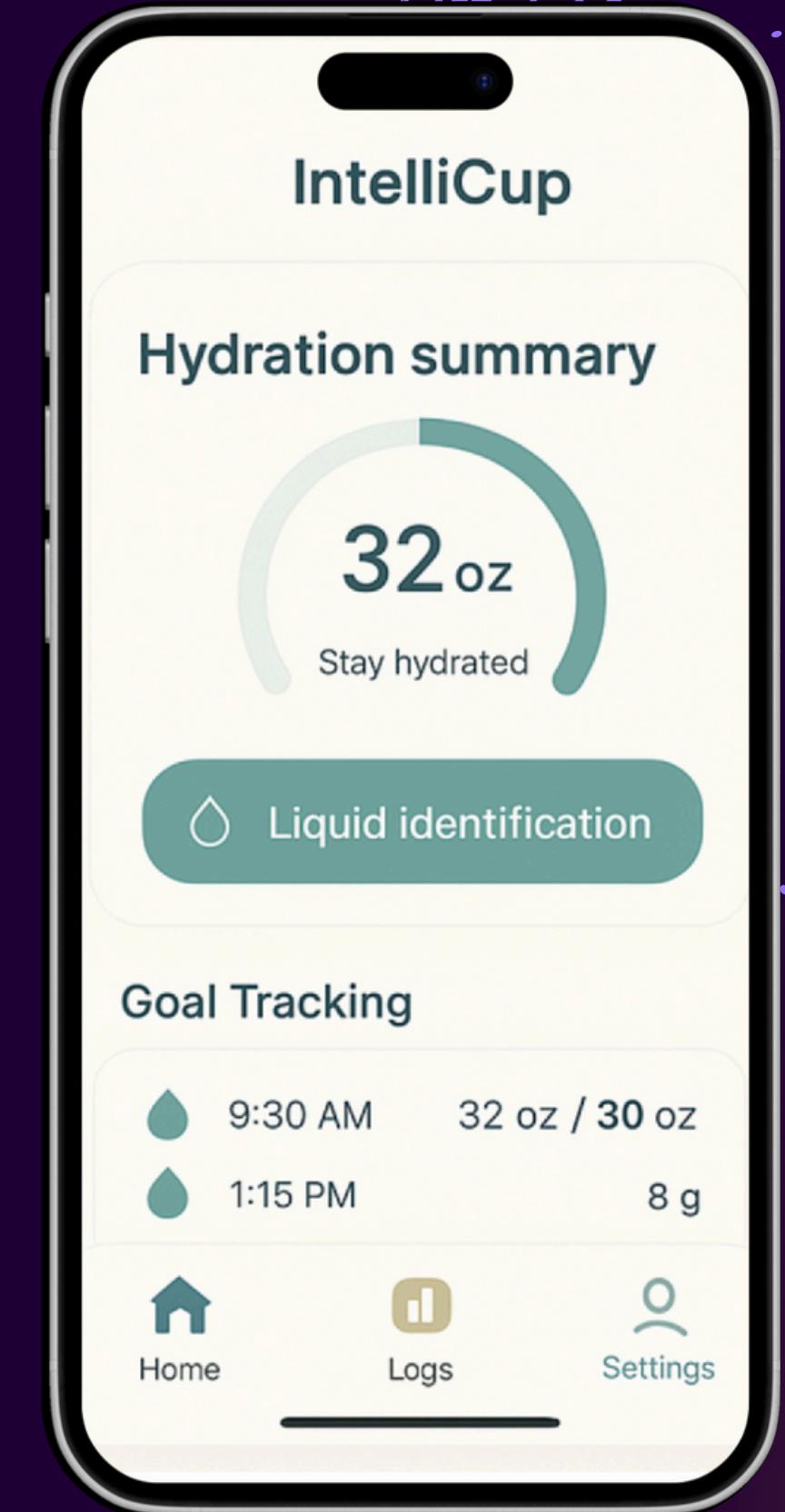
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**09**

ACKNOWLEDGEMENT

# INTRODUCTION TO INTELLICUP

IntelliCup is a smart hydration tracking system that helps users monitor and improve daily fluid intake. It uses real-time data to identify liquids and provide personalized hydration insights.



# SYSTEM OVERVIEW

## Three-Tier Architecture:

### PRESENTATION TIER:

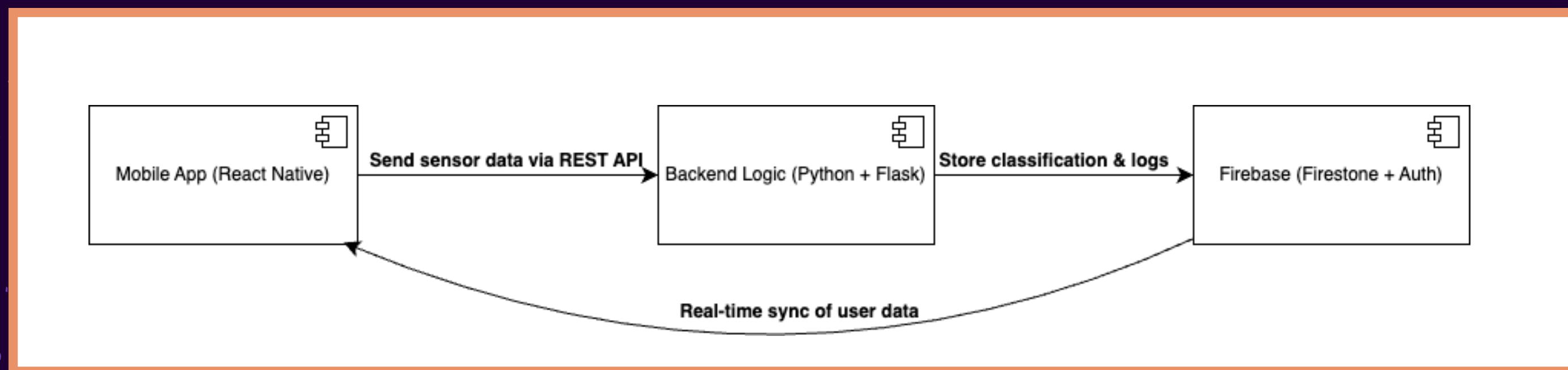
Mobile app (React Native)

### LOGIC TIER:

Sensor data processing  
and liquid classification  
(Python & Fast API)

### DATA TIER:

Real-time storage  
(Firebase Firestore)



# ACTOR IDENTIFICATION

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**01**

**End User**

Views data, tracks intake, sets goals

**03**

**Simulated Sensor:**

Sends liquid property data

**02**

**Administrator:**

Manages system updates and performance

**04**

**Firebase Services:**

Handles storage, sync, and authentication

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# ARCHITECTURAL STYLE

01

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**PRESENTATION TIER:**  
User interface (React Native)

02

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**LOGIC TIER:**  
Data processing logic (Python)

03

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**DATA TIER:**  
Data management (Firebase)

**Benefits:** Scalability, maintainability, and team collaboration

# DESIGN PATTERNS

Patterns Applied in IntelliCup:

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## MVVM/REDUX

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(for mobile app  
structure)

## FAÇADE PATTERN

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(for simplifying sensor  
data processing)

## SINGLETON PATTERN

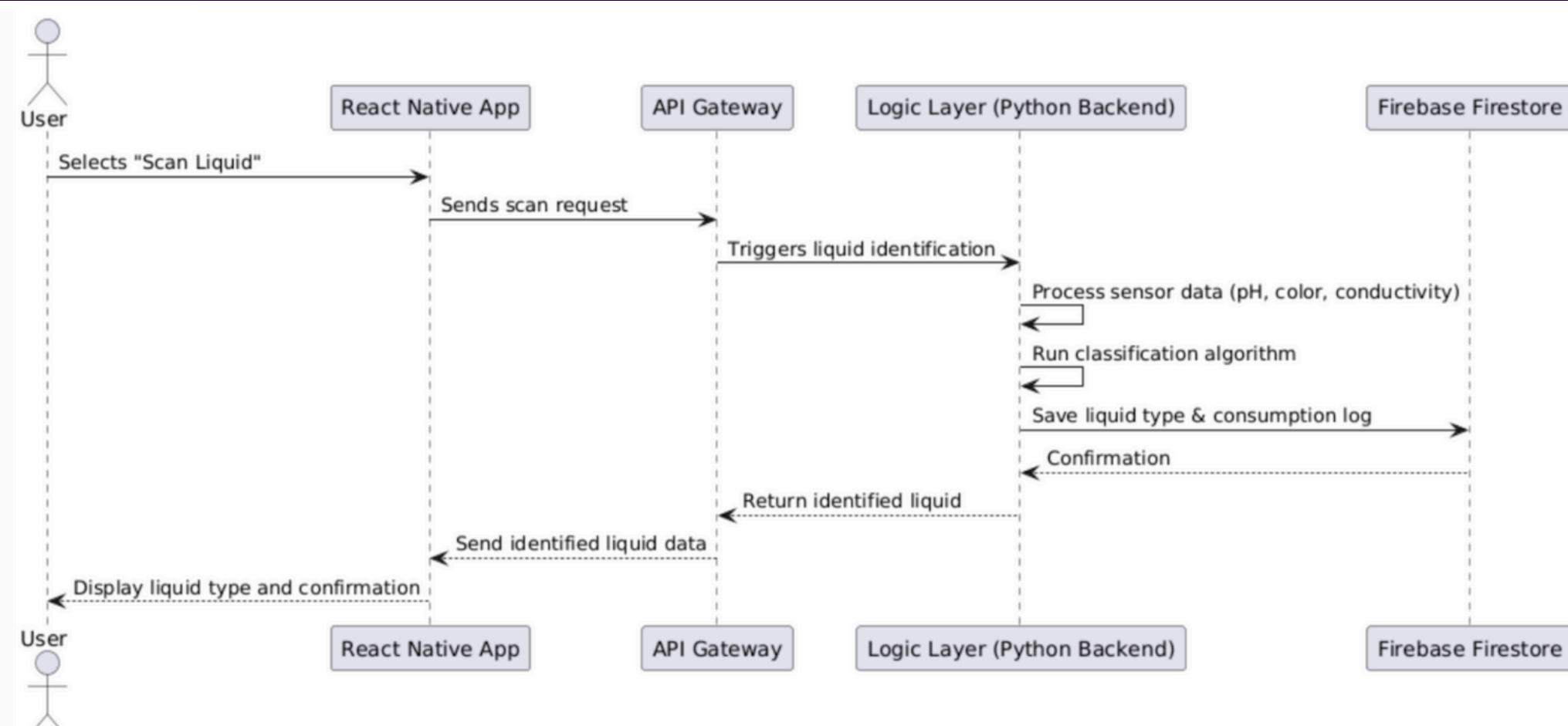
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(for key components  
like database  
connection)

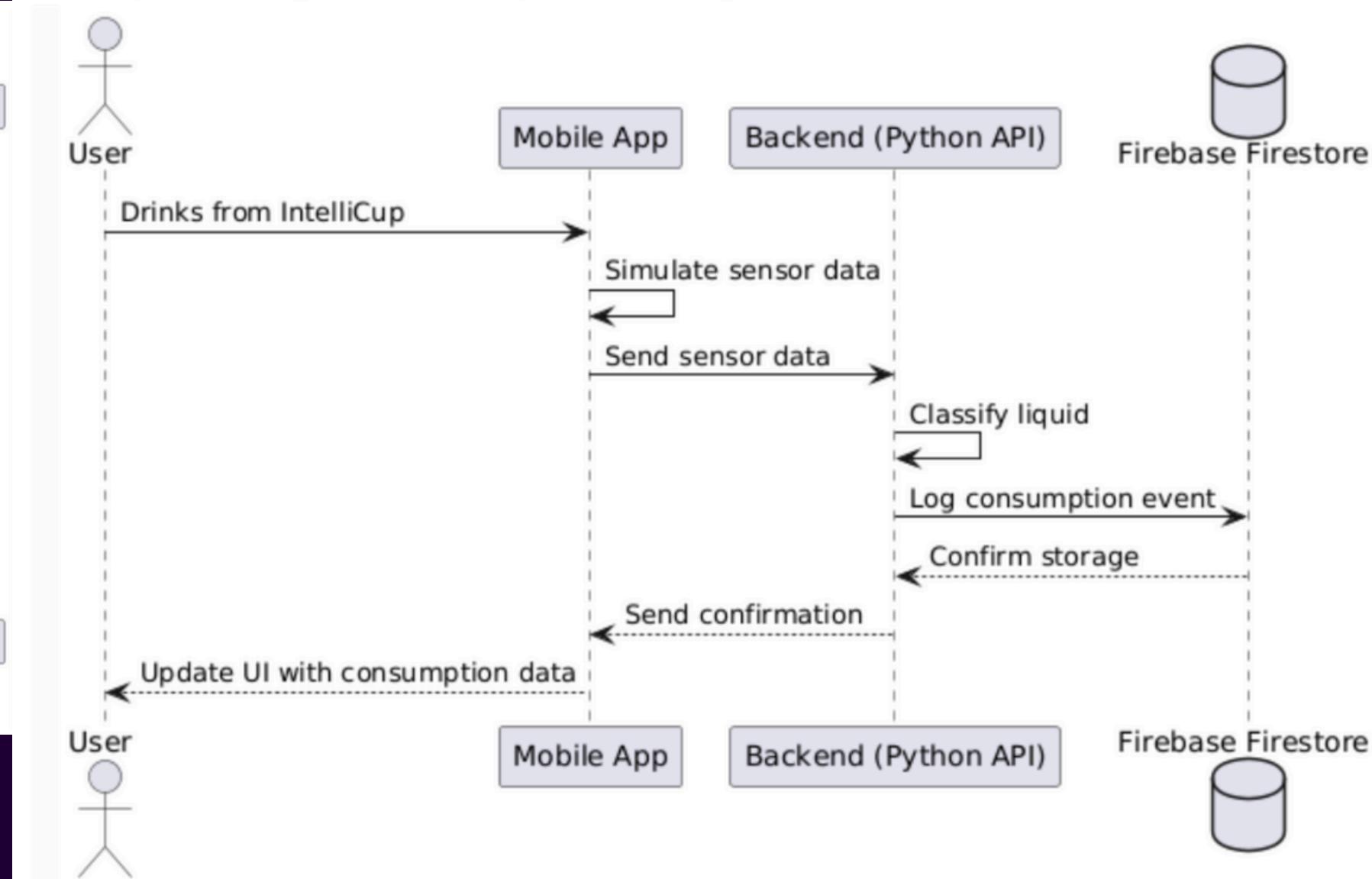
# FUNCTIONAL DESIGN

## Sequence Diagrams Overview:

### 01 Liquid Identification Use Case



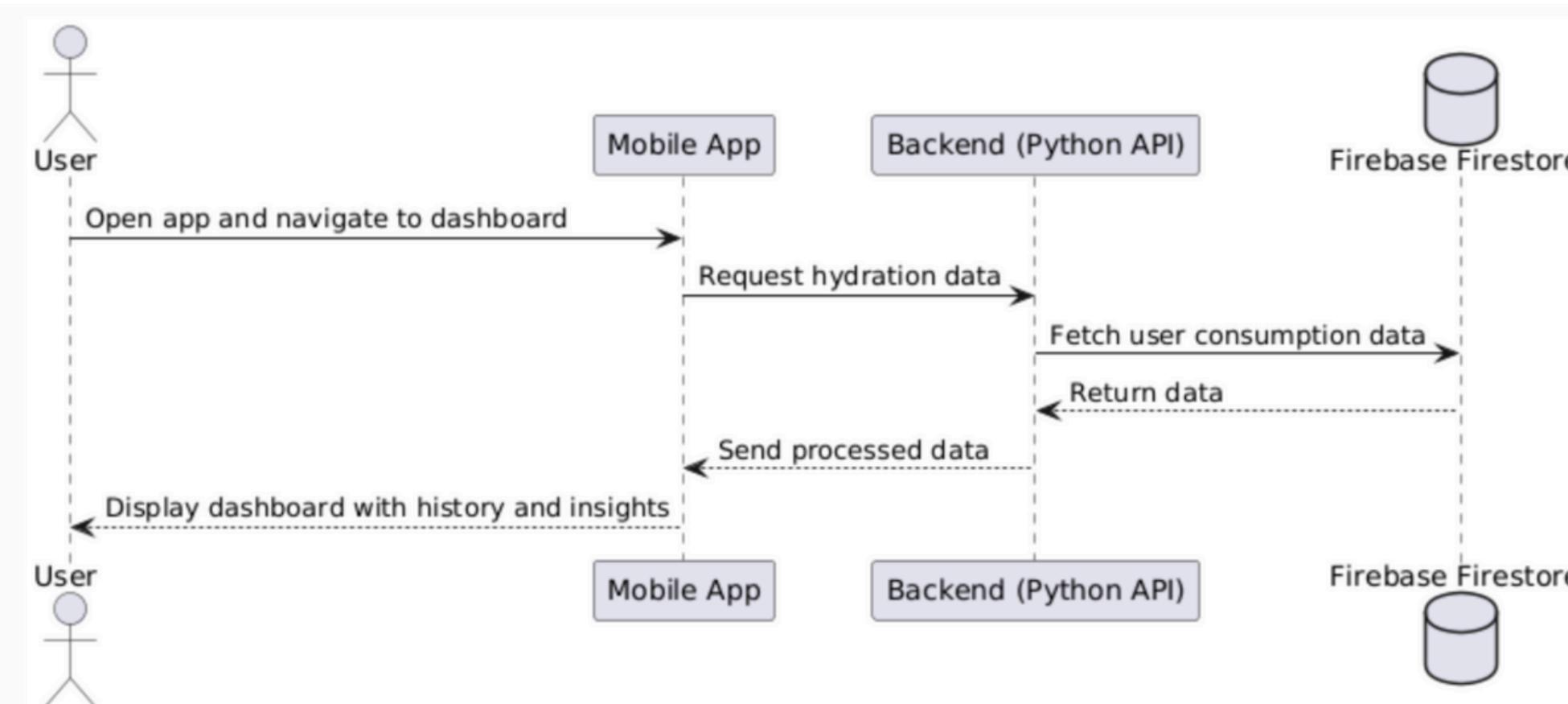
### 02 Consumption Tracking Use Case



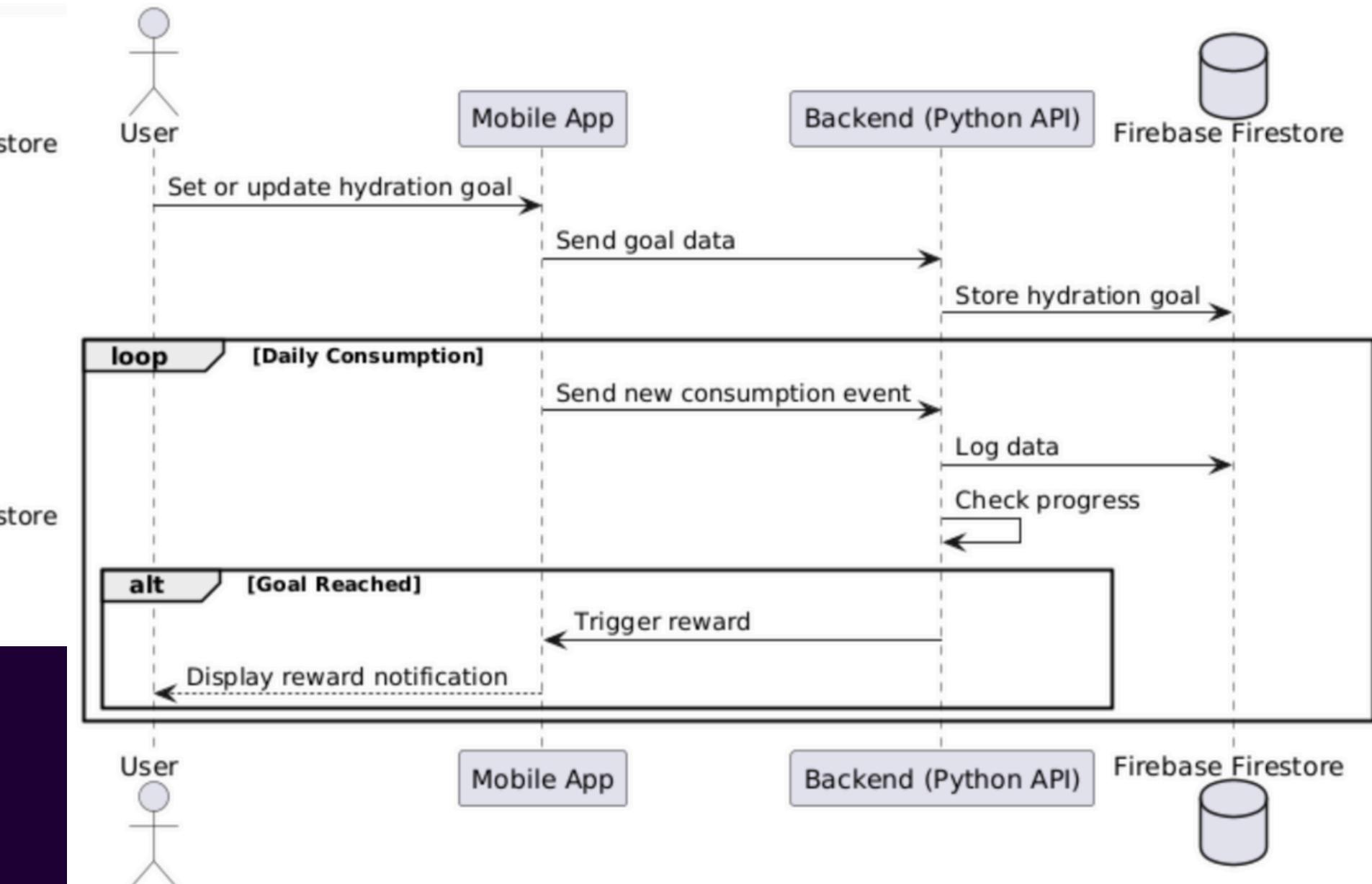
# FUNCTIONAL DESIGN

## Sequence Diagrams Overview:

### 03 User Dashboard Use Case

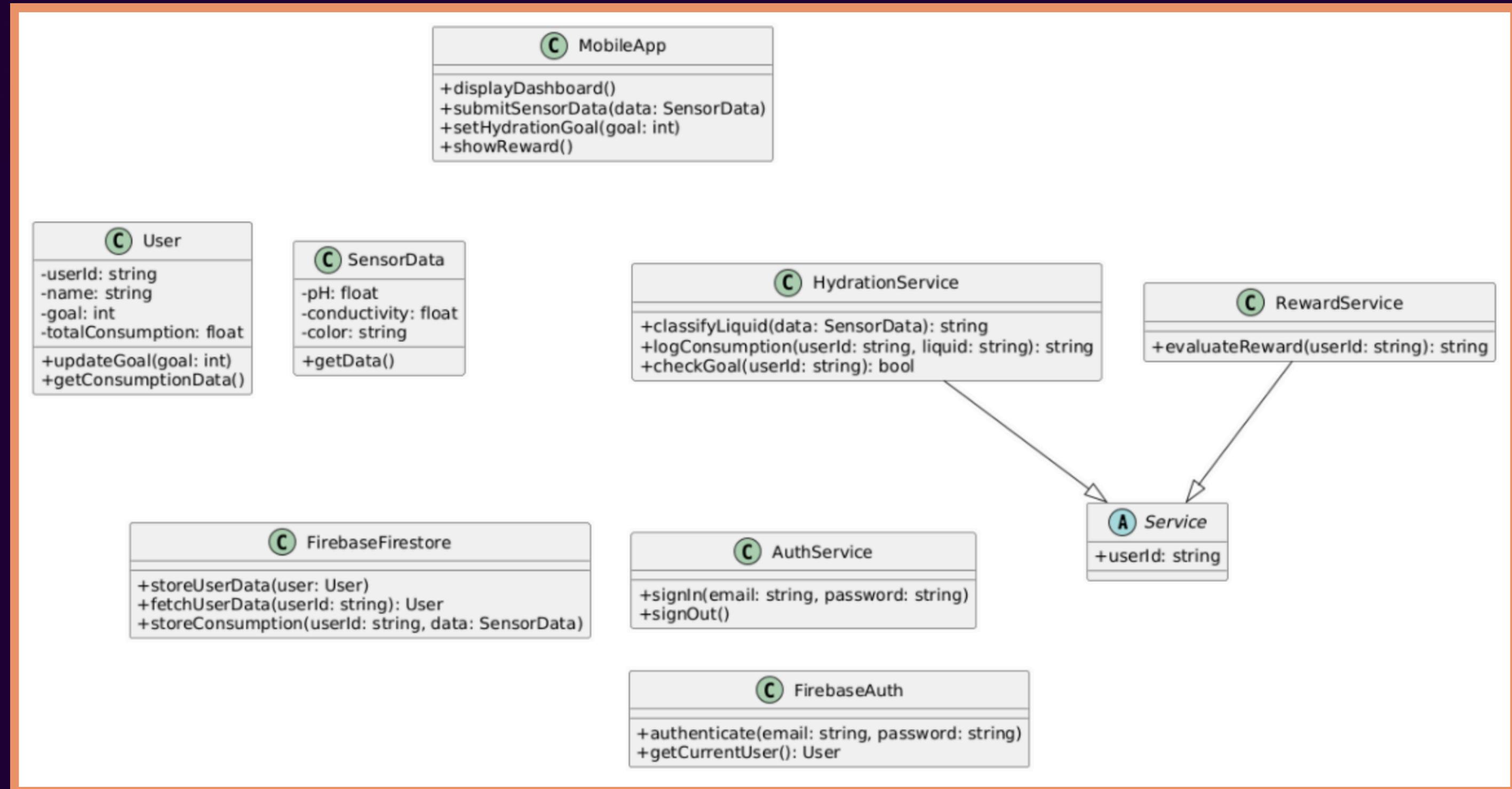


### 04 Hydration Goal & Reward System Use Case



# STRUCTURAL DESIGN

## Class Diagram:



# MOCK-UP

Home page, Logs page, Settings page



# ACKNOWLEDGEMENT

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# QUESTIONS?