



### Description: In-Game Wallet Application

#### Introduction

In this assignment, we expect you to develop an in-game wallet and product purchasing system. The application will be built on the Firebase platform and will be implemented using Braintree-Sandbox for payment integration.

#### Objective of the Assignment

- To be able to design system architecture.
- To be able to develop an application using Firebase and Braintree.
- To be able to use Firebase Authentication, Firestore Database, Firebase Functions, and Braintree APIs.

#### System Design

##### System Architecture Document

- Provide an overview of the system architecture, including the components, their interactions, and the overall design decisions.
- Outline the scalability, reliability, and security considerations incorporated into the system architecture.

##### Data Model and Database Schema

- Present the data model for the application, including the entities, their attributes, and the relationships between them.
- Document the database schema used in Firestore, detailing the collections, documents, and fields.
- Shortly, discuss the data storage and retrieval mechanisms optimized for performance and scalability.

##### Security Architecture

- Outline the security measures implemented to protect user data, payment transactions, and sensitive information.
- Explain the data access controls, rules and permissions used to ensure data confidentiality and integrity.

#### Features and Functions

##### Firebase Project Setup

- Create a new project through Firebase Console.
- Add Firebase Authentication, Firestore Database, and Firebase Functions services to your project.

##### User Operations:

- Integrate Google sign-in feature using Firebase Authentication.
- Create Firestore collections to hold the user's wallet balance and transactions.

##### Product Management:



- Create a fixed list of in-game purchasable items (e.g., gold packages, special characters, power-ups).
- For each purchase transaction, create a record in Firestore and update the user's wallet balance.

### Payment Integration:

- Receive payments using Braintree sandbox.
- Integrate the Braintree API through Firebase Functions and enable users to add money to their wallets.

### User Interface:

- Develop a React based user interface where users can purchase products, add balance, and see their transaction history.

### Delivery

- Share your source code and docs on a code sharing platform like GitHub.
- Add a README file explaining the steps required to run your application and the technologies used.
- (Optional) Add a short video or screenshots showing how to use the application.