Mobile Project Phase 2
– Data Layer using Firestore, Firebase Storage and local SQLite Database

1. Deliverables

In this phase, you will extend the phase 1 solution to manage the app data using Firestore, Firebase Cloud Store and local SQLite Database. The shared data that changes overtime need to be stored and managed online such as Customer, Invoice, Payment, Cheque, Cheque Deposit. The remaining static data (data that rarely change such as *Cheques Return reasons*) should be stored and managed in a local database to improve performance and reduce the cost of using Firestore.

Your project phase 2 deliverables include:

Part 1 - Cloud Firestore Database Design and Implementation

1. Design Cloud Firestore database to manage the App data.
2. Implement the repository methods to read/write entities using Cloud Firestore as the data source. All **data filtering should be done on the server** using Cloud Firestore queries and only the required data should be retrieved.
   Also, it is important to ensure that the list of entities (such as Customer, Invoice, Payment and Cheque Deposit) is properly refreshed after add/update/delete operations.
3. Enhance add/update cheque payment to allow the user to attach a cheque image from the gallery or take an photo using the Camera.
   When adding/updating the cheque payment to Firestore you need to upload the associated cheque file to Firebase Cloud Storage. Also, when you delete a cheque you should delete its associated image file from Firebase Cloud Storage.

   Also, when viewing the cheque image it should be downloaded from Firebase Cloud Storage.
4. Initialize the Firestore database: when the app starts, check if Firestore database is empty then initialize it with data from *the json files under the **assets** folder*.
5. Document your database design in a schema diagram.

Important notes: When adding entities (e.g., a Customer) to Firestore you should let Firestore auto-set the entity id (e.g., auto-assign the **customerId** when adding a Customer).

Part 2 - Manage static data using local SQLite

1. Implement the needed entity annotations to manage static data in a local SQLite database using Floor package.
2. Implement the Data Access Objects (DAO) and repositories to read/write from SQLite using Floor package.
3. If the database is empty, populate the database with the data from the json files under the assets folder.
4. Document your database design in a schema diagram.

Part 3 – Signup and Signin using Firebase Authentication

Implement signup and authentication using Firebase Authentication. Upon sign-up a user account should be created on Firebase Auth (using the user email and password) and the user details should be stored in **users** collection in Firestore.

Design and Testing Documentation

- Firestore database schema diagram and SQLite database schema diagram.
- Write a testing document including screenshots of conducted tests illustrating a working