ACCEPTANCE TASK REPORT

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TABLE OF CONTENTS

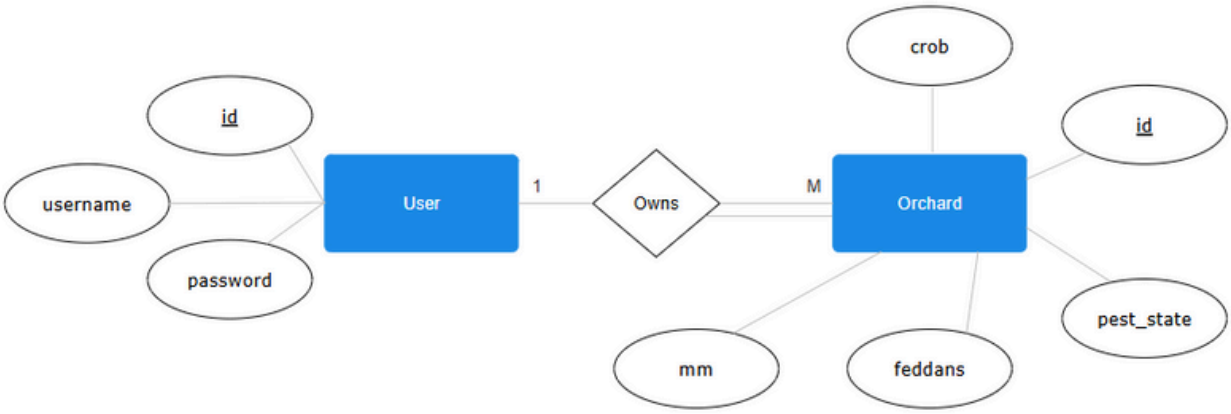
INTRODUCTION

This report documents the development of the Farm Orchard Management Dashboard for Dakahlia for Agriculture Development Co. The project involved creating a two-page Flutter application integrated with a PostgreSQL database.

The application features a secure sign-in interface that validates user credentials and retrieves user permissions from the database. Upon successful sign-in, users are directed to a dashboard displaying information about farm orchards, including names, locations, crop types, and yields.

Key tasks included designing the database schema, implementing user authentication, and developing a user-friendly dashboard interface. This report provides an overview of the design choices, implementation details, and challenges encountered during the project.

DESIGN CHOICES



The database initial design consists of users and orchards.
Each user has 3 attributes which are the id, username, password.
Each Orchard has id, crob, feddans, pest state and yield.

The design is chosen to be 1 to many as each user **can** have a one or many orchards but each orchard must be owned by one user.

So, the DB can be implemented with one attribute in the orchard schema referring the user id (u_id) as a foreign key.

IMPLEMENTATION DETAILS

The task uses Flutter as a front-end technology and Postgres as a back-end technology.

Flutter

Consist of 2 pages

Page 1 **Login page**

A login page typically mimics the design sent. It has the user credentials authentication functionality as well as the remember me functionality

Page 2 **Dashboard**

A dashboard for viewing and managing current user orchards. It has the main information about the orchards as well as a menu for other pages left for later use.

Postgres

Consist of a local server setup on the computer

2 Tables **Users and orchards**

The Postgres DB is setup with 2 tables. One for the users and their data and one for the orchards.

CHALLENGES

1. Integration of Flutter with PostgreSQL

One of the primary challenges was integrating the Flutter application with the PostgreSQL database. Ensuring secure and efficient communication between the frontend and the backend required careful handling of database connections, queries, and responses.

2. Secure Authentication

Implementing a secure sign-in process was critical. This involved securely hashing passwords, validating user credentials, and managing user sessions. SHA-256 was used for hashing using the crypto dependency for flutter.

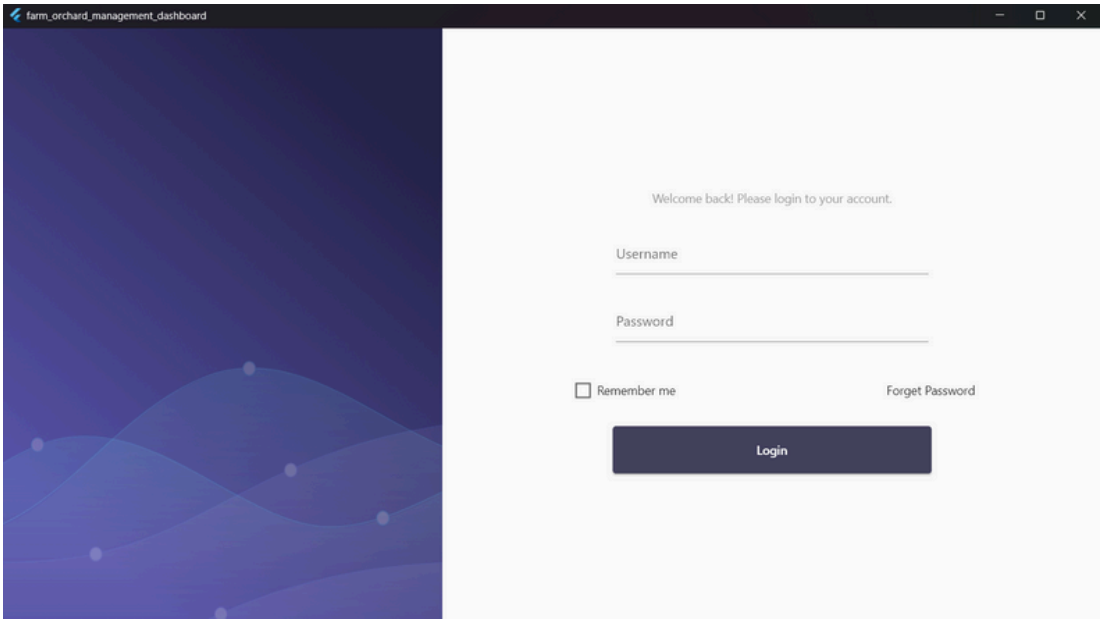
3. Database Design and Management

Designing the database schema to effectively store user information and orchard data posed a challenge. Establishing appropriate relationships between tables and ensuring data integrity were crucial. Populating the database with realistic sample data for testing also required careful planning.

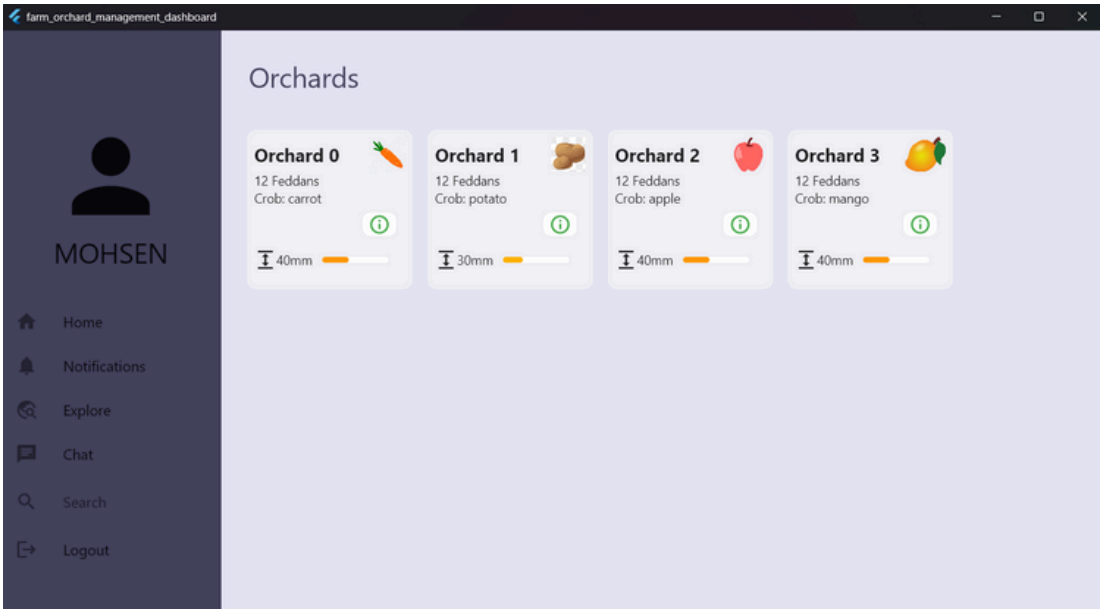
SCREENSHOT FROM THE APP

Below are screenshots taken from the app while running.

Login page



Dashboard



GITHUB

The project main files are uploaded on GitHub as well as the SQL Script.
You can find it here: https://github.com/AbdElrhmanRezq/Farm-Orchard-Management-Dashboard.

VIDEO

This is a video of the project running.
https://youtu.be/Bo_3SEM1PQo