Save2Serve

FOOD EXPIRY AND RECIPE SUGGESTOR
MOBILE APP DEVELOPMENT

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Introduction

Food wastage is a serious global issue, especially at the household level. People often buy groceries without proper planning, forget expiry dates, and eventually throw away food that could have been consumed. This problem not only causes financial loss but also negatively impacts the environment.

Save To Serve is a mobile application developed to solve this problem by helping users manage their groceries efficiently. The application allows users to store grocery details, track expiry dates, view expired items, and receive recipe suggestions based on available ingredients. The main objective of this project is to **reduce food waste and promote responsible food consumption**.

This project is developed using **React Native (Expo)** for the frontend and **Supabase** as the backend service.

Problem Statement

Many households face the following problems:

- Forgetting grocery expiry dates
- Buying duplicate grocery items unnecessarily
- Throwing away expired food
- Lack of ideas to cook food using available ingredients

Existing solutions are either complex or do not combine grocery tracking with recipe suggestions. Therefore, there is a need for a **simple, user-friendly, and smart mobile application** that manages groceries and helps reduce food wastage.

Objectives of the Project

The main objectives of **Save To Serve** are:

1. To allow users to manage grocery items digitally
2. To track expiry dates of food items
3. To identify expired and near-expiry items
4. To suggest recipes using available groceries

5. To reduce food wastage at the household level
6. To provide a secure user authentication system
7. To store data safely using a cloud backend

Scope of the Project

The scope of this project includes:

- Individual household users
- Android platforms
- Cloud-based backend using Supabase
- Secure login and data storage

Technology Stack

- **Frontend:** React Native (Expo)
- **Programming Language:** JavaScript
- **State Management:** Custom user store
- **Backend / Database:** Supabase
- **Navigation:** React Navigation
- **Platform:** Android / iOS (via Expo)

Project Folder Structure

- **App.js** – Main entry point of the application
- **index.js** – Registers the app
- **package.json** – Project dependencies and scripts
- **app.json** – Expo configuration
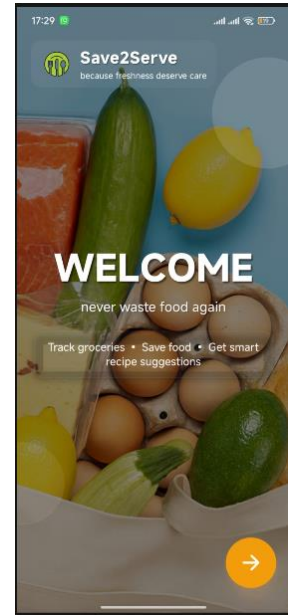- **components/** – Reusable UI components

- **screens/** – All application screens

Screens

1. Welcome Screen (WelcomeScreen.js)

Purpose:

- First screen shown to the user
- Introduces the app and navigation to Login or Sign Up

## 2. Sign Up Screen (SignUpScreen.js)

Purpose:

- Allows new users to create an account
- Uses email and password authentication
- Data is securely stored using Supabase Auth
- Prevents duplicate users

3. Sign In Screen (SignInScreen.js)
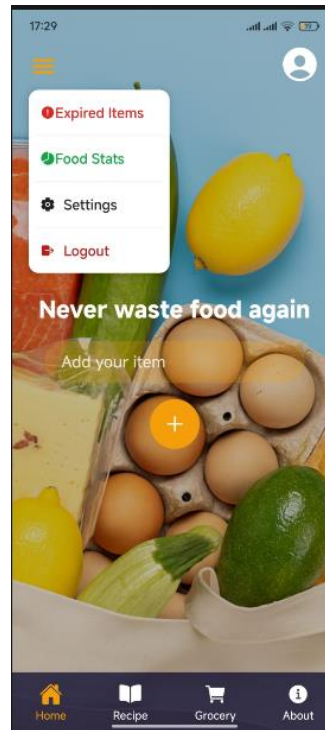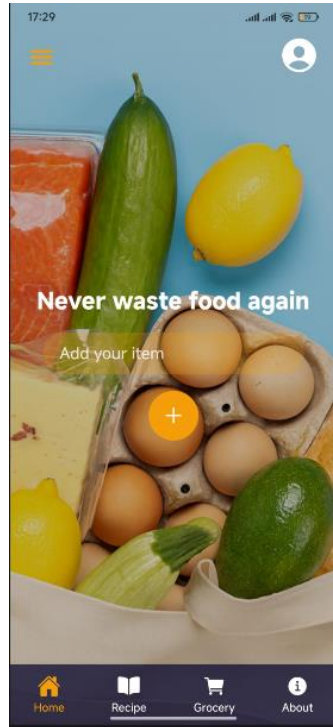
Purpose:

- Authenticates existing users
- Validates credentials using Supabase
- Redirects user to Home Page after successful login
- Validates credentials
- Displays error messages on failure
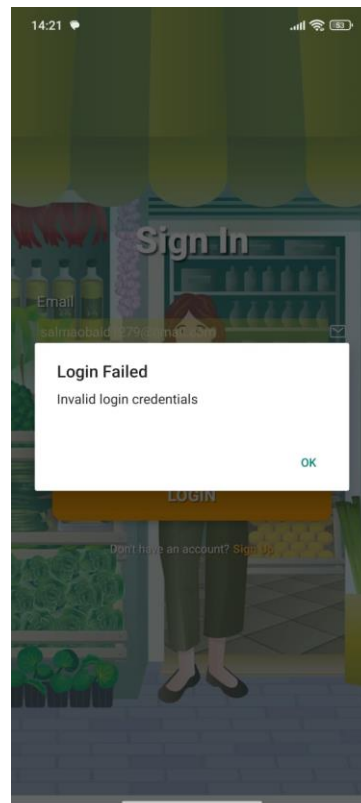
4. Home Page (HomePage.js)

Purpose:

- Central dashboard of the application
- Provides navigation to Grocery, Recipes, Expired Items, Stats, Settings, About and Profile

5. Grocery Page (GroceryPage.js)

Purpose:

- Users can add grocery items
- Each item includes:
    - Item name
    - Quantity
    - Expiry date
- Items are saved in Supabase database
- Data is user-specific
- Display list of all added grocery items
- Delete items
- Show popup notification of items that are going to expired in 2 days
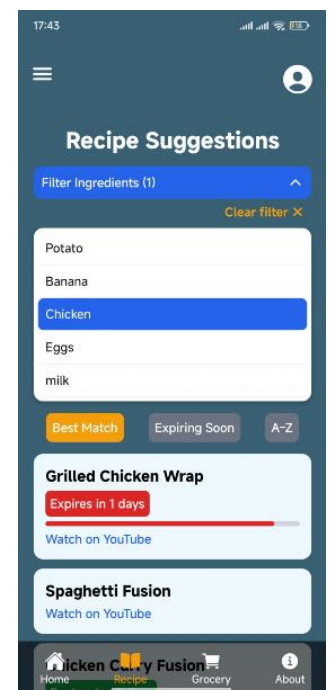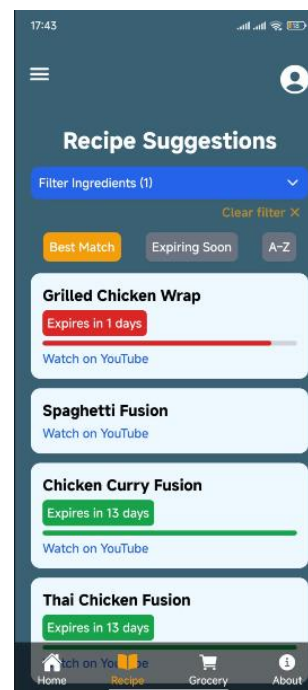- Press the ingredient long to mark as used
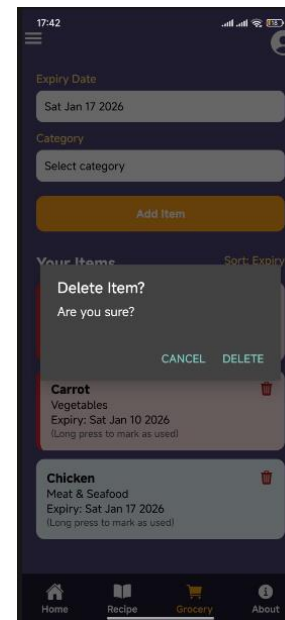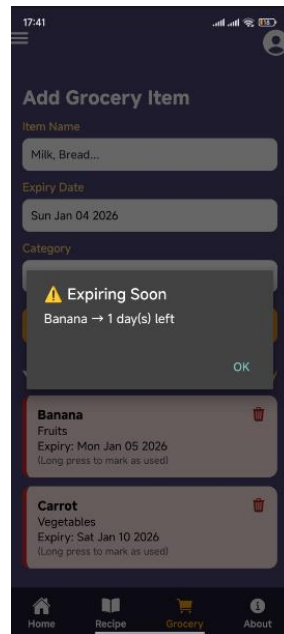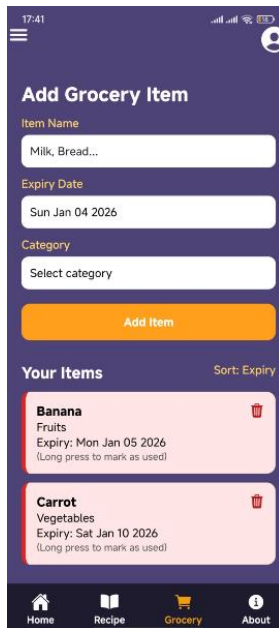
6. Recipe Page (RecipePage.js)

Purpose:

- Displays recipes
- Uses stored grocery data
- Matches ingredients with recipes
- Suggests suitable recipes
- Encourages users to use available items
- Press the recipe to saw it in YouTube

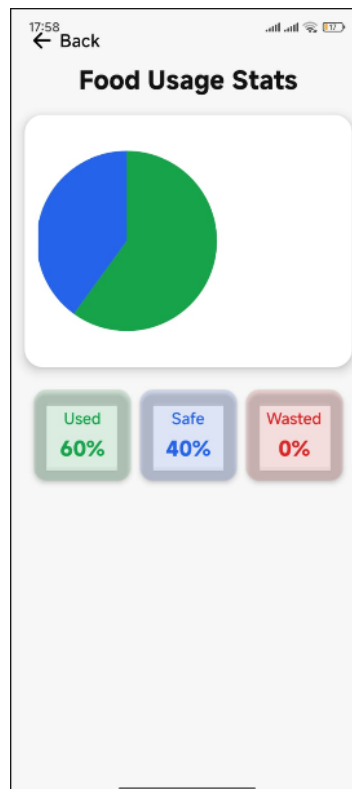## 7. Expired Items Page (ExpiredItemsPage.js)

Purpose:

- Shows expired grocery items
- Helps users identify unusable food

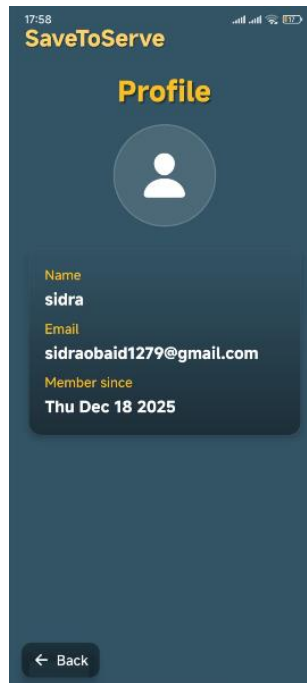## 8. Food Statistics Screen (FoodStatsScreen.js)

Purpose:

- Displays food usage statistics
- Shows counts of total, expired, and available items
- Helps users understand consumption behavior

9. Profile Screen (ProfileScreen.js)

Purpose:
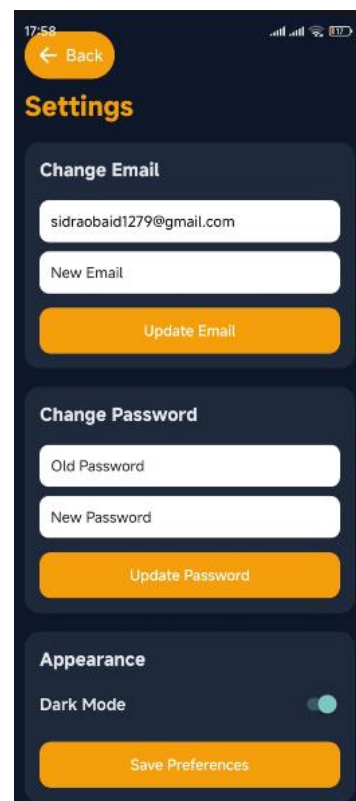
- Displays user profile information

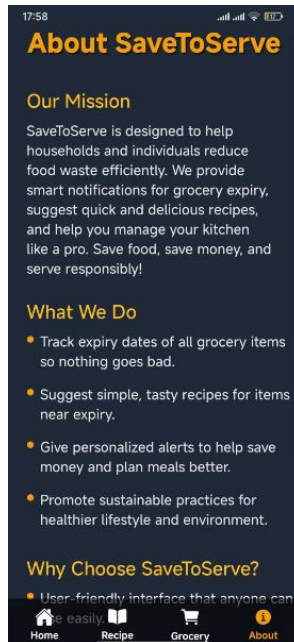# 10. Settings Screen (SettingsScreen.js)

Purpose:

- Application preferences and settings
- User can change their email
- User can change their password
- Theme selection dark or light

11. About Page (AboutPage.js)

Purpose:

- Describes application purpose.

Database Design (Supabase)
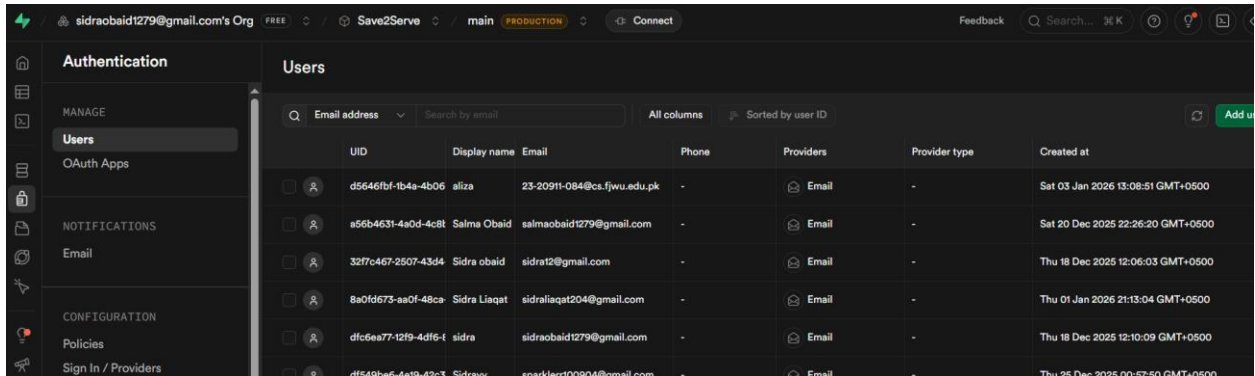
The database contains:

- Users table (managed by Supabase Auth)
- Grocery items table
- Recipes table
- Recipe ingredients table

Relationships are maintained using foreign keys.

Security Features

- Secure authentication
- User-specific data access
- Cloud-based database protection
- Session handling

Testing

- Tested using Expo Snack
- Functional testing of all screens
- Authentication and database tested successfully

Test Case	Description	Result
TC-01	User Registration	✅ PASS
TC-02	User Login	✅ PASS
TC-03	Add Grocery Item	✅ PASS
TC-04	Mark Item as Used	✅ PASS
TC-05	Recipe Search	✅ PASS
TC-06	Progress Dashboard	✅ PASS
TC-07	Mobile Responsiveness	✅ PASS

<u>User Feedback</u>

• "Easy to use and intuitive interface"

• "Recipe suggestions are very helpful"

• "Progress tracking motivates to waste less"

• "Works perfectly on mobile phone"

<u>Conclusion</u>

Save To Serve is a practical, real-world mobile application that addresses the issue of food wastage. By combining grocery management, expiry tracking, and recipe suggestions, the app provides a complete solution for households.

The use of **React Native** and **Supabase** demonstrates modern development practices and strong backend integration. This project successfully meets its objectives and has great potential for future expansion.