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FACULTY OF ENGINEERING  
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*Course Project of Mobile Computing*

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## **Flashcards with Image Enhancement and GPS Location-Based Cards**

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# Table of Contents

<b>1</b>	<b>Project Overview</b>	<b>1</b>
<b>2</b>	<b>Key Features</b>	<b>2</b>
2.1	User Account Management . . . . .	2
2.2	Deck Creation and Management . . . . .	2
2.3	Location-Based Flashcards . . . . .	2
2.4	Study Mode . . . . .	2
2.5	User Interface . . . . .	3
<b>3</b>	<b>App Screens and Interaction Flow</b>	<b>4</b>
3.1	Create account and sign in screens . . . . .	4
3.2	Creating decks . . . . .	5
3.3	Creating cards . . . . .	6
3.4	Learning flashcards . . . . .	7
3.5	Location-based flashcards . . . . .	8
3.6	Settings and account management . . . . .	9
<b>4</b>	<b>Design System</b>	<b>10</b>
4.1	Color Palette . . . . .	10
4.2	Typography . . . . .	10
<b>5</b>	<b>Links</b>	<b>11</b>
<b>6</b>	<b>Conclusion</b>	<b>12</b>

## **Abstract**

This project presents a mobile flashcard app enhanced with image support and GPS-based location features. It enables users to create and study flashcards tied to real-world locations, supporting contextual and spatial learning. Core features include account management, customizable decks, interactive study mode, and responsive UI. The app is developed using modern mobile frameworks and prioritizes user experience and educational effectiveness.

# 1. Project Overview

Our app leverages the effectiveness of flashcards with an added spatial memory dimension.

”Location Cards” allow flashcards to be tied to a specific geographic area. For example, users can review historical facts when near a museum, or biology terms in a lab setting.

**Main capabilities include:**

- Creating and managing flashcard decks.
- Adding text/images to each side of a card.
- Linking cards to GPS-based or mock locations.
- Studying cards with interactive difficulty rating.
- Seamless navigation and modern UI.

## **2. Key Features**

### **2.1 User Account Management**

- Sign up, login, and logout functionality.
- Profile editing: name, email, and password.
- Account deletion and secure data handling.

### **2.2 Deck Creation and Management**

- Title and optional icon for each deck.
- Add/edit flashcards with text and images.
- Easy navigation between cards.

### **2.3 Location-Based Flashcards**

- Link flashcards to a specific location.
- View cards based on current or selected location.
- Add contextual notes.

### **2.4 Study Mode**

- Flip animation to reveal answers.
- Difficulty rating: Hard, Good, Easy.
- Swipe gestures for card navigation.

## **2.5 User Interface**

- Bottom tab navigation (Home, Location Cards, Settings).
- Responsive layout using Montserrat font.
- Clean color palette for clarity and engagement.

## 3. App Screens and Interaction Flow

### 3.1 Create account and sign in screens

First time users are prompted to create an account. After signing in, they are directed to the home screen.

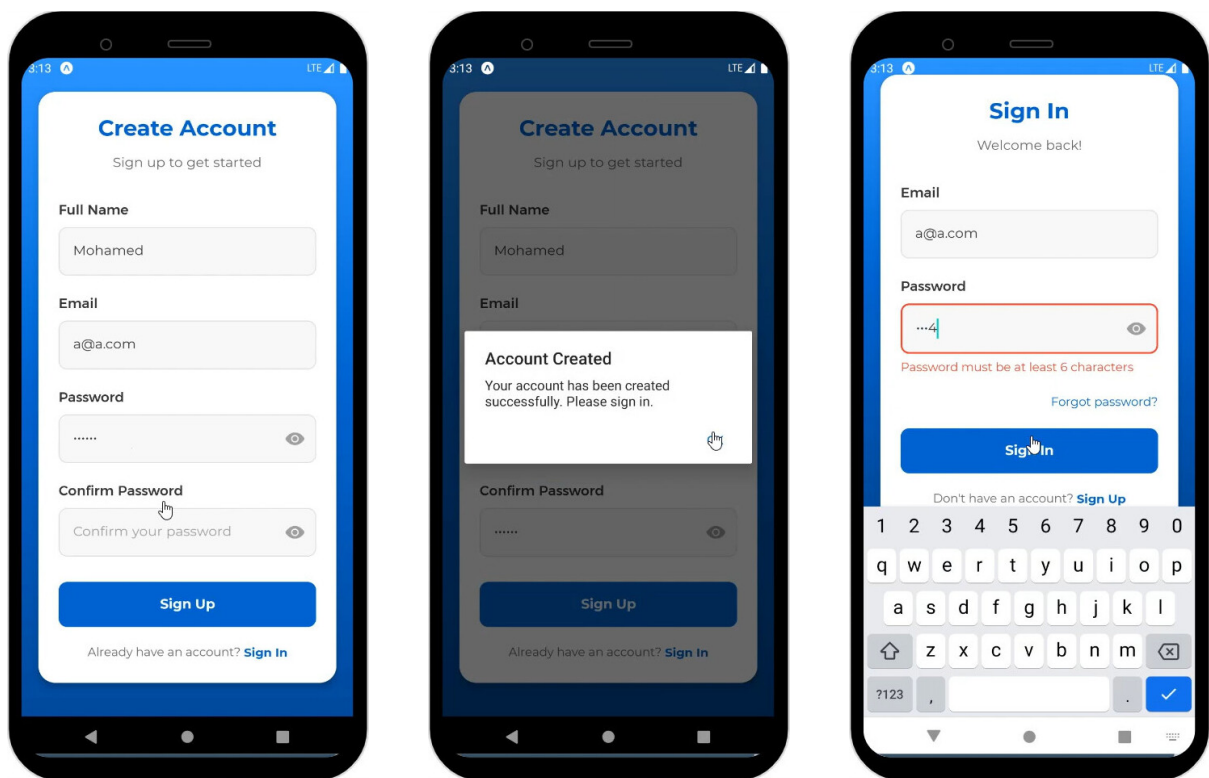


Figure 3.1: Create account and sign in screens

## 3.2 Creating decks

User defines deck title and chooses an icon. The new deck is displayed on the home screen.

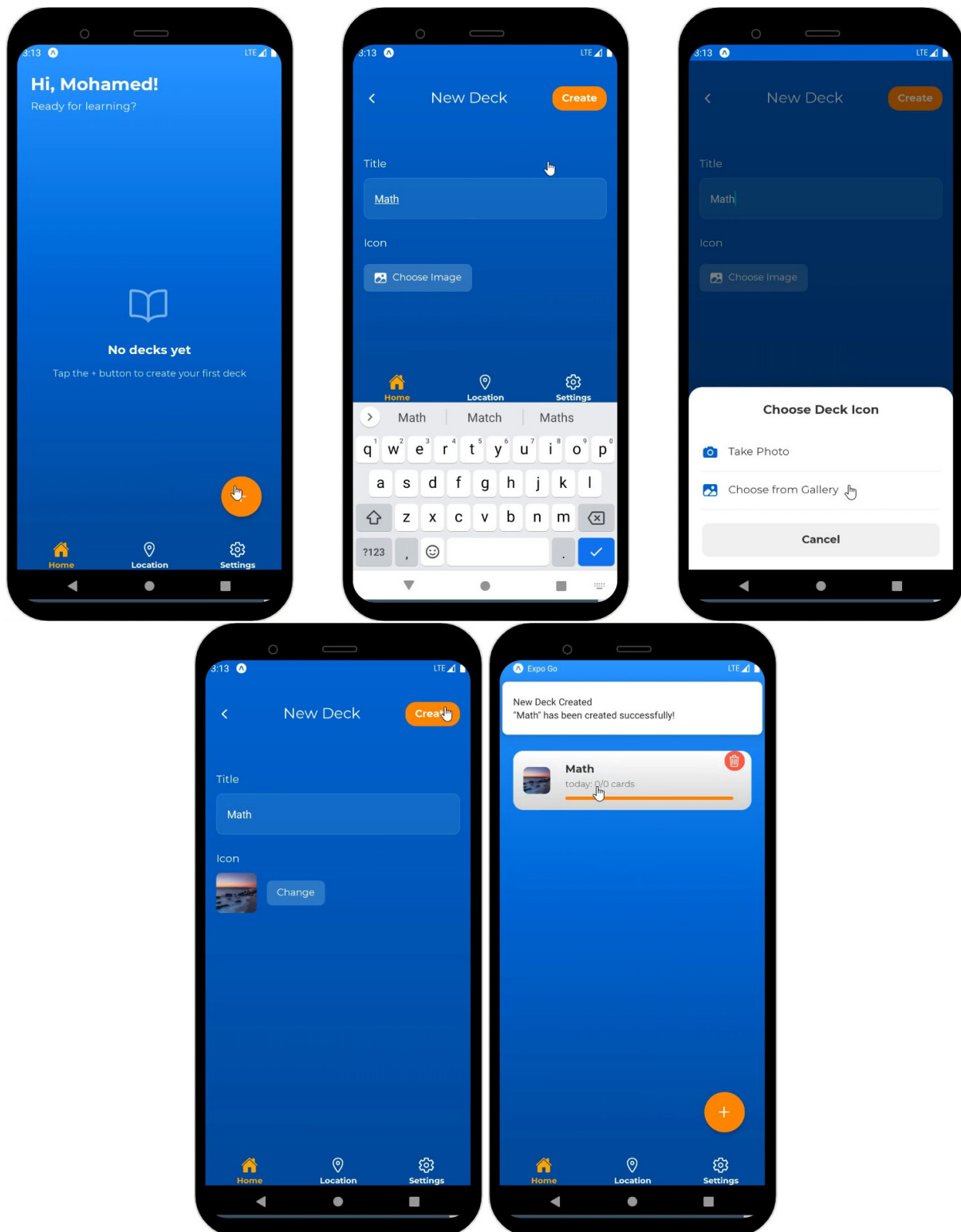


Figure 3.2: Create account and sign in screens



### 3.3 Creating cards

User adds cards to a deck. They add card front and back text or attach images.

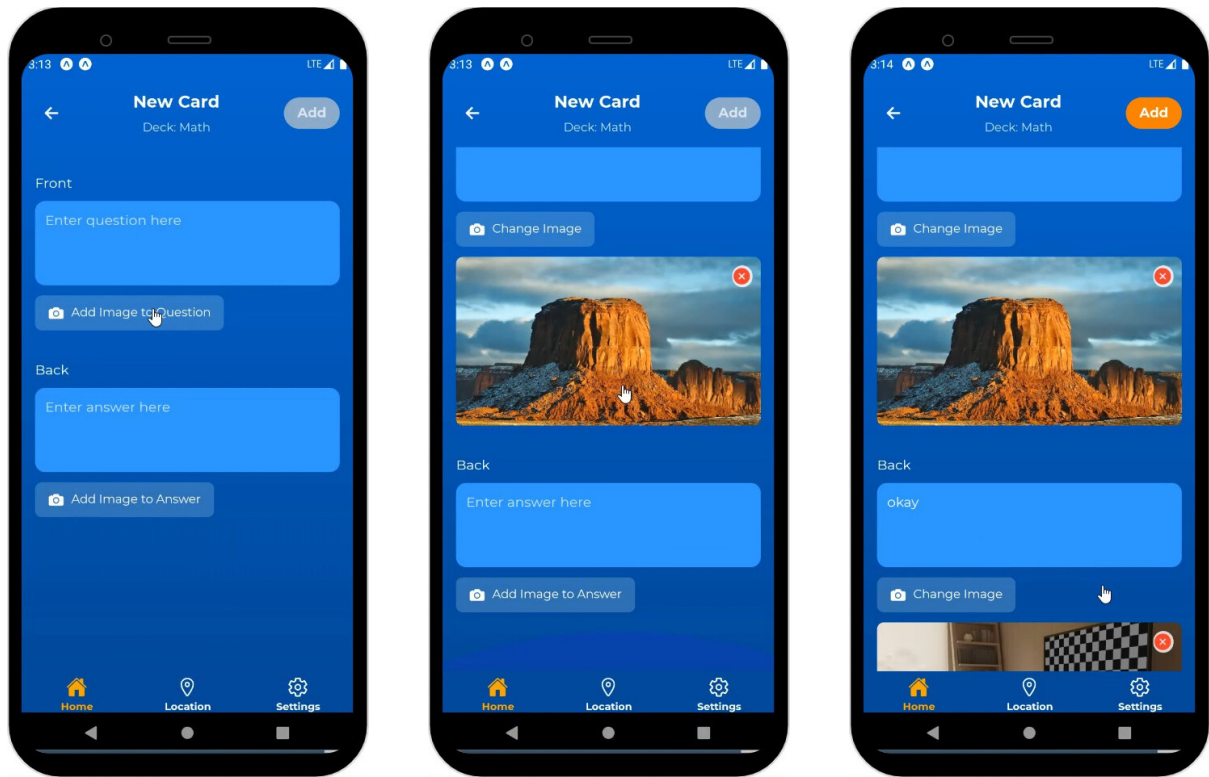


Figure 3.3: Creating cards

### 3.4 Learning flashcards

After adding cards to a deck, users can study them with self-assessment options.

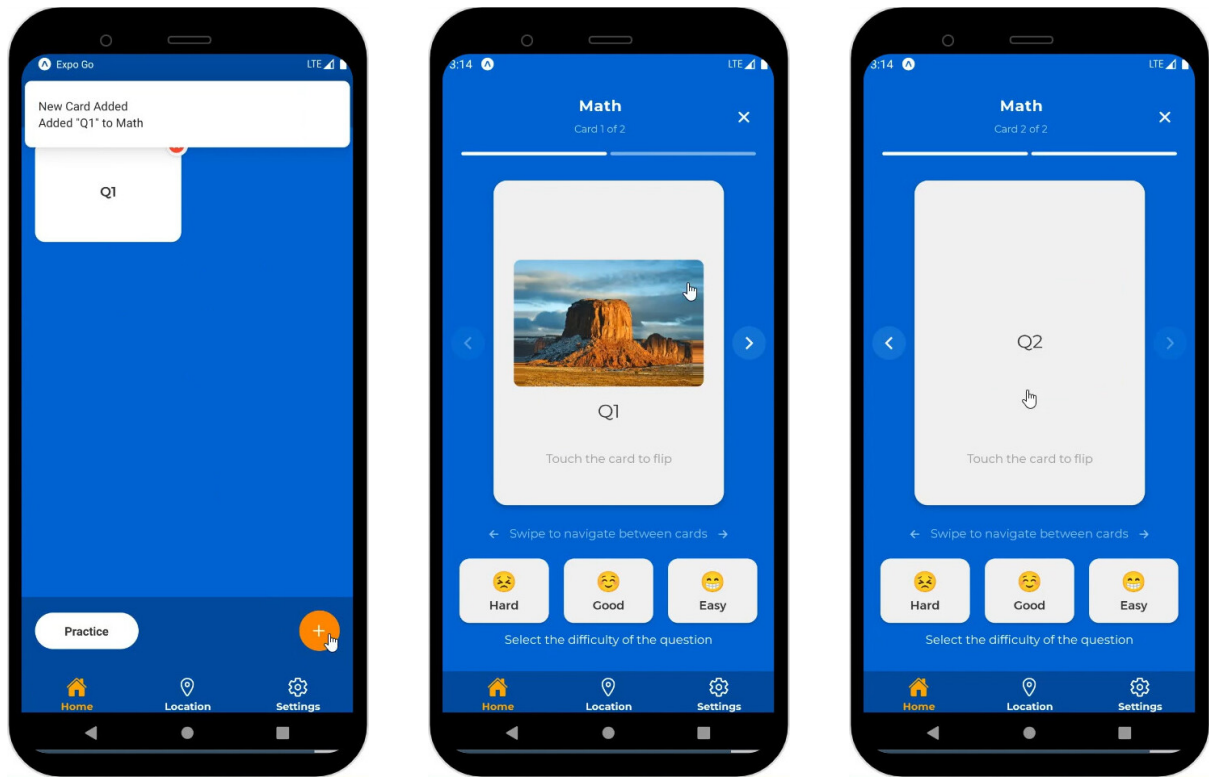


Figure 3.4: Learning flashcards

### 3.5 Location-based flashcards

User can create "Location Cards" linked to a specific location. This allows for learning that is tied to context, potentially enhancing recall when the user is in or thinks about that location.

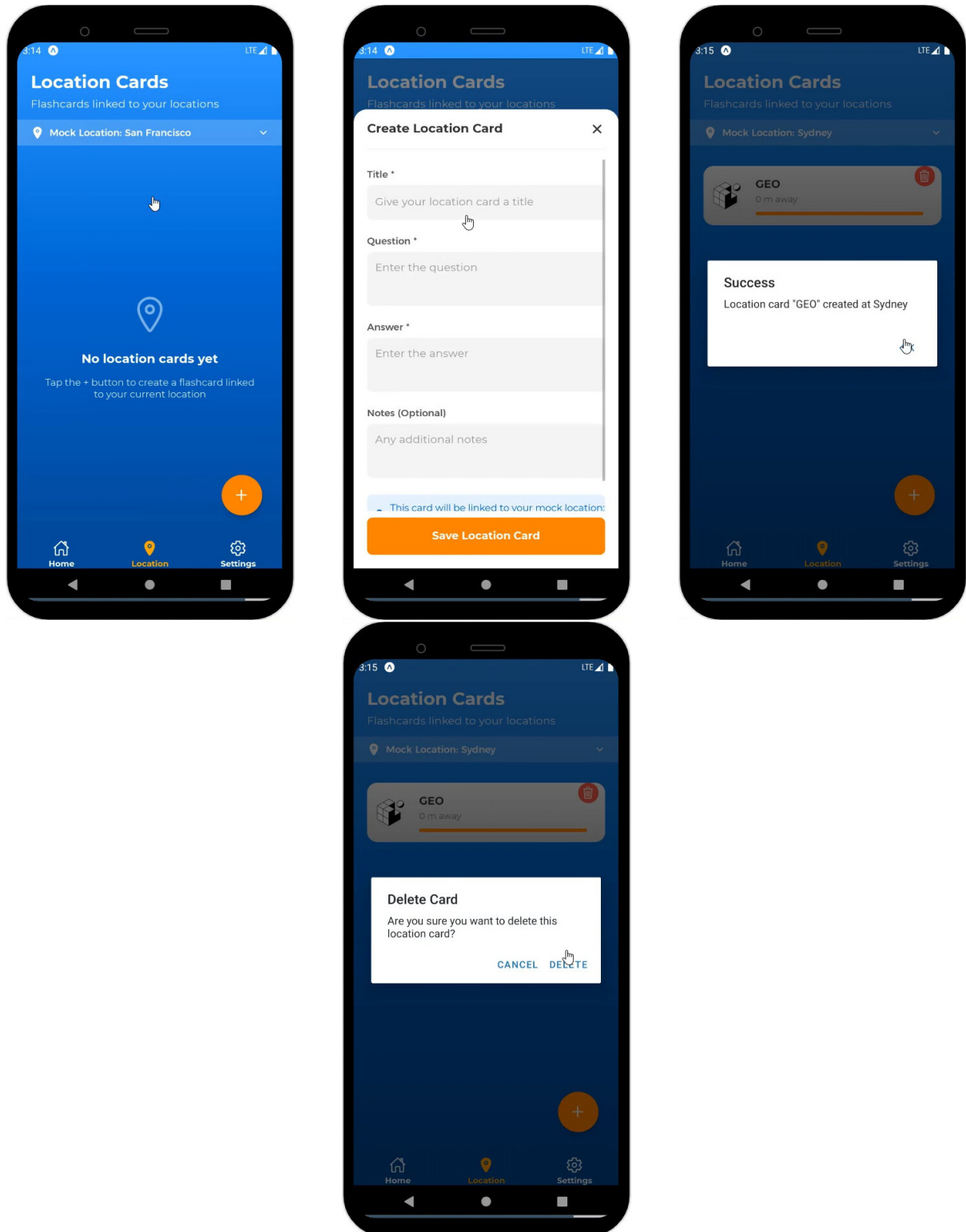


Figure 3.5: Location-based flashcards

## 3.6 Settings and account management

User can manage profile, password, and account actions.

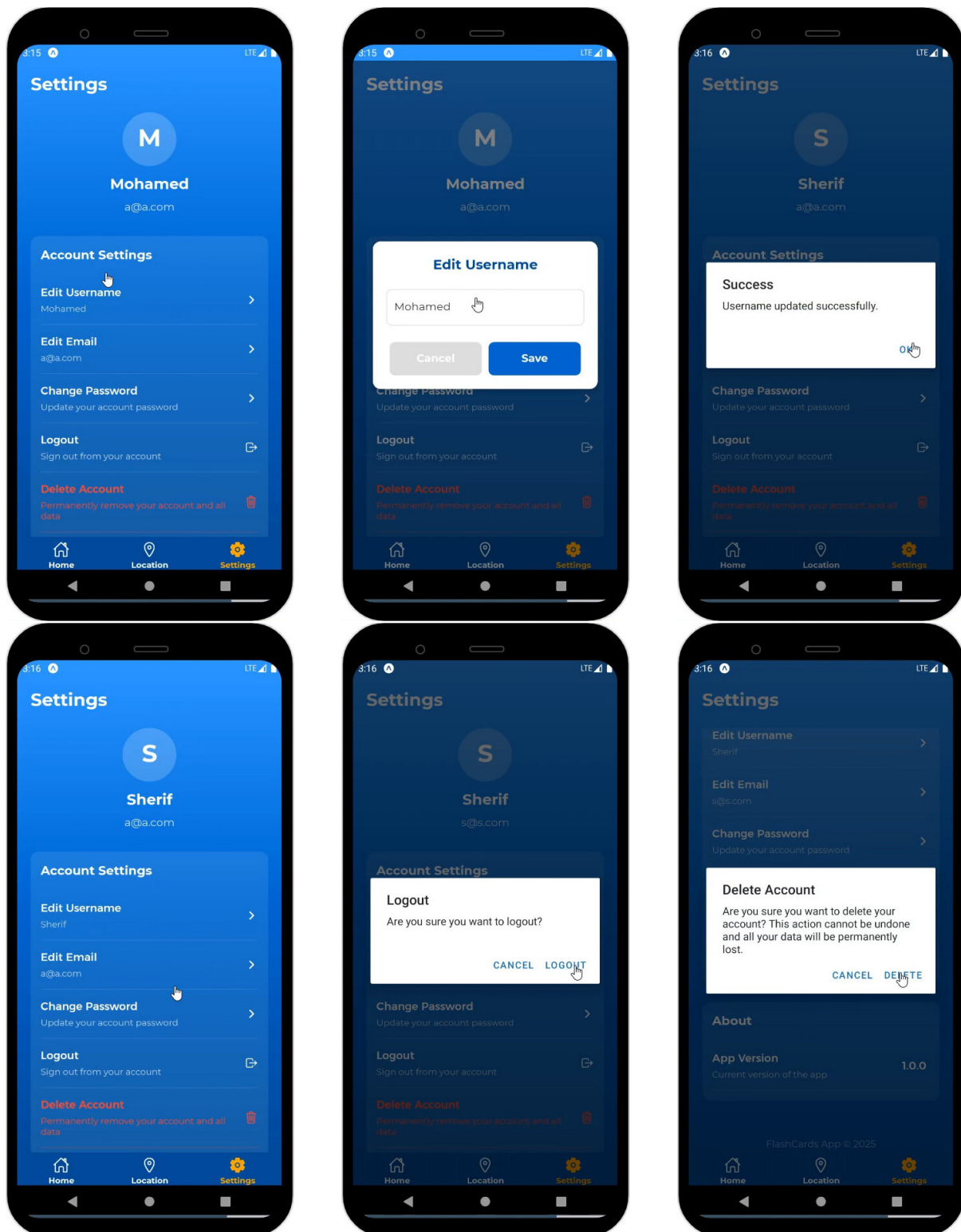


Figure 3.6: Settings and account management

## 4. Design System

### 4.1 Color Palette

- **Primary Blue:** #0066CC
- **Secondary Blue:** #004C99
- **Accent Orange:** #FFB000
- **Grayscale:** UI backgrounds and text

### 4.2 Typography

**Font:** Montserrat (Google Fonts)

Chosen for readability and clean modern appearance.

## 5. Links

**GitHub Repository:** <https://github.com/karim-m-ali/flashcards>

**Expo Snack Demo:** [https://snack.expo.dev/@ahmed\\_elwakad/flash\\_card\\_project](https://snack.expo.dev/@ahmed_elwakad/flash_card_project)

## 6. Conclusion

This project demonstrates a full-featured learning platform with an intuitive UI, robust feature set, and a novel location-based learning concept. It encourages contextual memory reinforcement and caters to personalized study habits. The implementation showcases both technical depth and thoughtful design.