Misr International University
Faculty of Engineering
Department of Electronics and Communication
Course: ECE468 Selected Topics in Electronics
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Lab 3: Journal App

Overview

In this lab, you will build a complete Journal App that allows users to write notes and view a daily inspirational quote. This app will teach you about UI design, navigation, local storage, and API integration in Flutter.

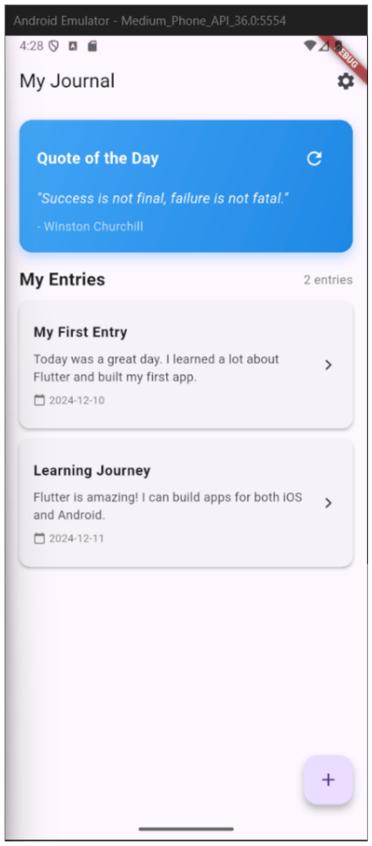
Part 1 : UI

You are allowed to (preferred) Change some of the UIs.

These UIs are just a guide for you to visualize the idea of the APP

Screen 1: Home Screen

- Display a "Quote of the Day" card at the top
- Show a list of all saved journal entries below
- Each journal entry should show:
  - Title
  - Date created
  - Preview of content (first 2 lines)
- Add a Floating Action Button (+) to create new entries
- Include a Setting icon to go to settings
- Include a refresh button to get a new quote



"Success is not final, failure is not fatal."
- Winston Churchill

My First Entry
Today was a great day. I learned a lot about Flutter and built my first app.
2024-12-10

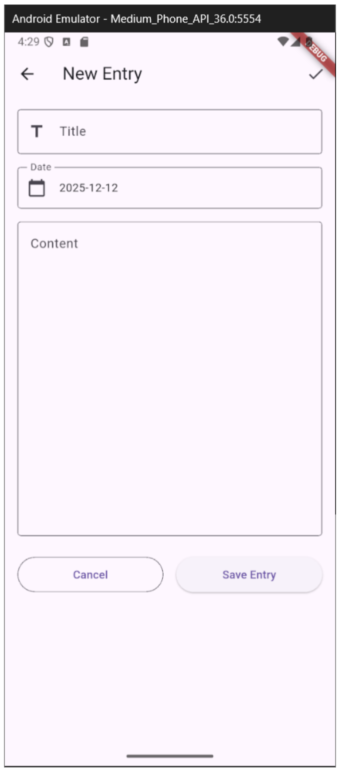
Learning Journey
Flutter is amazing! I can build apps for both iOS and Android.
2024-12-11

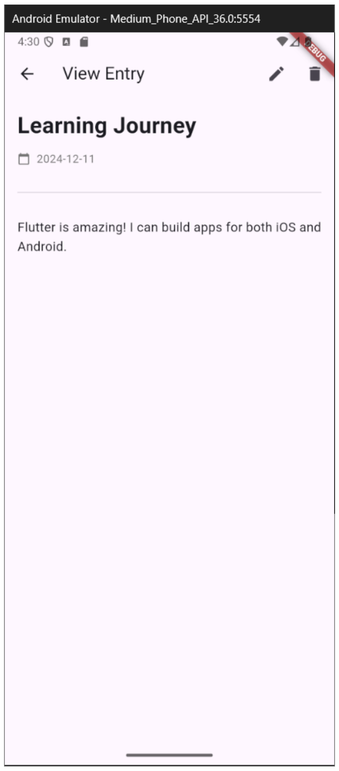
Screen 2: Add/Edit Journal Entry Screen

- Text field for title
- Multi-line text field for journal content
- Date picker to select entry date
- Save button
- Cancel button
- If editing, pre-fill with existing data

Screen 3: View Journal Entry Screen

- Display the full journal entry with:
  - Title
  - Date
  - Full content
- Add edit and delete buttons
- Add a back button to return to home





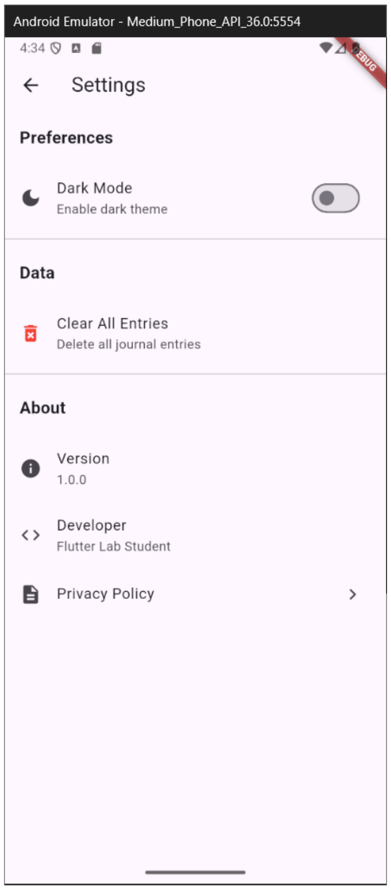
Learning Journey

2024-12-11

Flutter is amazing! I can build apps for both iOS and Android.

Screen 5: Settings Screen (Optional)

- Toggle for dark mode preference
- Clear all entries option
- About section



Android Emulator - Medium_Phone_API_36.0:5554

4:34

Settings

Preferences

Dark Mode
Enable dark theme

Data

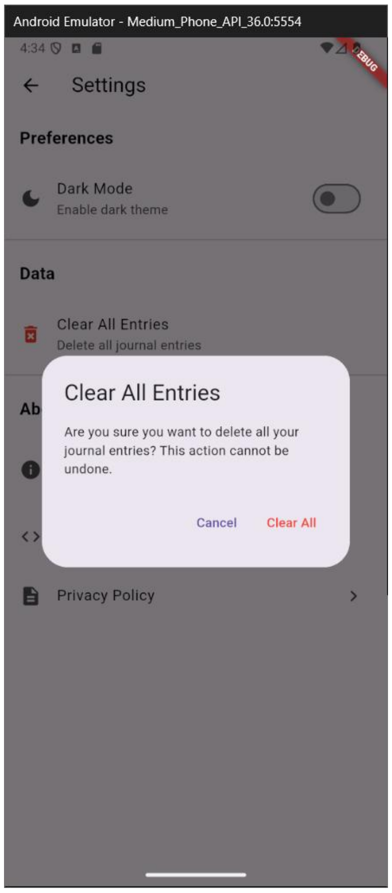
Clear All Entries
Delete all journal entries

About

Version
1.0.0

Developer
Flutter Lab Student

Privacy Policy



Android Emulator - Medium_Phone_API_36.0:5554

4:34

Settings

Preferences

Dark Mode
Enable dark theme

Data

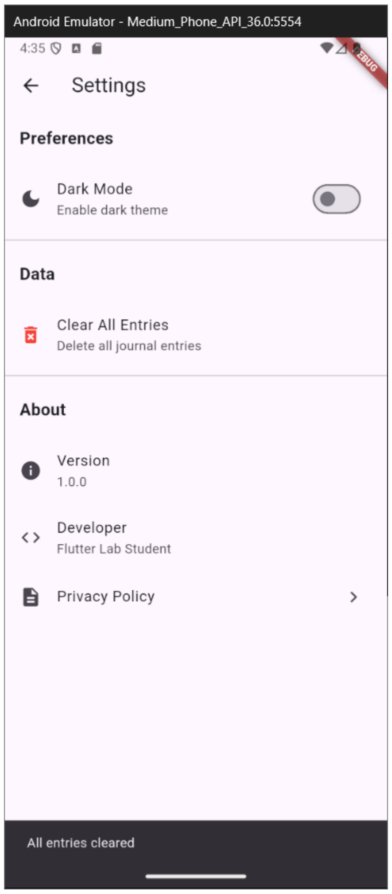
Clear All Entries
Delete all journal entries

Clear All Entries

Are you sure you want to delete all your journal entries? This action cannot be undone.

Cancel Clear All

Privacy Policy



Android Emulator - Medium_Phone_API_36.0:5554

4:35

Settings

Preferences

Dark Mode
Enable dark theme

Data

Clear All Entries
Delete all journal entries

About

Version
1.0.0

Developer
Flutter Lab Student

Privacy Policy

All entries cleared

Part 2 : Setup the Route

In main.dart

```
routes: {
    '/':  /* Splash Screen*/,
    '/home': /*Home Screen */,
    '/add-entry': /*Add & Edit Entry of Notes Screen */,
    '/view-entry': /* View Entry of Notes Screen */,
    '/settings': /* Settings Screen*/,
  },
```

Implement navigation:

- Use Navigator.pushNamed() to navigate forward
- Use Navigator.pop() to go back
- Pass data between screens using route arguments

Testing:

- Verify you can navigate to all screens
- Test back button functionality
- Ensure data is passed correctly between screens

Part 3 : Setup the database

Create a local SQLite database to store journal entries.

Add Dependencies:

- Add sqlite and path packages to pubspec.yaml

Create Journal Model:

```
class JournalEntry {

int? id;

String title;

String content;

String date;

    }
```

Create Database Helper Class:

- Create database_helper.dart
- Create methods:
    - initDatabase() - Initialize database
    - insertEntry() - Add new journal entry
    - getEntries() - Retrieve all entries
    - updateEntry() - Update existing entry
    - deleteEntry() - Delete an entry
    - getEntry() - Get single entry by id

Database Schema:

- Table name: journal_entries
- Columns:
    - id (INTEGER, PRIMARY KEY, AUTOINCREMENT)
    - title (TEXT)
    - content (TEXT)
    - date (TEXT)

<u>Part 4 : Shared Preferences</u>

Use Shared Preferences to store user settings and the last fetched quote.

Add Dependency:

- Add shared_preferences package to pubspec.yaml

Create Preferences Helper:

- Create preferences_helper.dart
- Implement methods to:
  - Save dark mode preference
  - Get dark mode preference
  - Save last app open date

Implementation:

- Store user preference: isDarkMode
- Store user preference: isLoggedIn

Usage:

- Save user's dark mode preference
- Saving the email to ease the login process
- Save loggin

<u>**Part 5 : Hive**</u>

Use Hive to store user settings and the last fetched quote.

Add Dependency:

- Add hive, hive_flutter, and hive_generator packages

Create Hive Helper:

- Create Hive_helper.dart
- Implement methods to:
    - Save last quote and date
    - Retrieve saved quote
    - Check if quote is from today

Implementation:

- Store quote data: lastQuote, lastQuoteDate
- Store app data: lastOpenDate

Usage:

- On app launch, Check for the lastQuoteDate,
    - If a day is passed ; then display a new Quote
- Make sure the app will store Quotes for a whole week with no internet connection

Part 6 : API Call

Fetch a random inspirational quote from an external API.

Add Dependencies:

- Add http package to pubspec.yaml

Choose Quote API:

- Option 1: https://zenquotes.io/api/random
- Option 2: Any other free quote API

Create Quote Model:

```
class Quote {
  String text;
  String author;
// …
}
```

Create API Service:

- Create quote_service.dart
- Implement fetchQuote() method

Implement Quote Display:

- Call API when app opens
- Show loading indicator while fetching
- Display quote in card on home screen
- Show author name
- Add refresh button to get new quote
- Handle errors gracefully (no internet, API down)

Optimize API Calls:

- Check Hive storage first
- Cache today's quote to avoid unnecessary API calls

Bonus Parts

1- Screen : Splash Screen
   - Display app logo or name
   - Show for 2-3 seconds before navigating home
   - Add a simple animation (optional)

2- Add Transition animations

3- Search Functionality: Add ability to search through journal entries

4- Add Favorite Quote , and Favorite Note feature

Evaluation Criteria

All will be documented in a report in PDF format or .md (This is your final Assignment)

- **UI/UX (20%):** Clean, intuitive interface
- **Navigation (15%):** Smooth routing between screens
- **Login (10%) :** let the user write their mail and password on every entry
  - Save the email only in the Shared Preferences
- **Database (15%):** Proper SQLite implementation
- **Shared Preferences (10%):** Correct usage for settings
- **Hive (10%):** Working alternative storage
- **API Integration (15%):** Successful quote fetching
- **Code Quality (5%):** Clean, organized, commented code