Android Application Development

Money Matters: A Personal Finance Management App

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MONEY MATTERS: A PERSONAL FINANCE MANAGEMENT APP

1. PROJECT OVERVIEW

The goal of the Money Matters project is to develop a personal finance management Android application that empowers users to track their spending, set budgets, and gain valuable insights into their financial habits. The app will offer features such as setting a monthly spending limit, viewing current balance, and recording transactions, allowing users to efficiently manage their finances in a user-friendly environment. With a focus on expense tracking and budget control, Money Matters aims to provide a simple yet powerful solution for personal finance. Key features will include customizable monthly limits, real-time tracking of expenses, and transaction history management. Users can set limits for different categories, receive alerts when approaching their limits, and analyze their spending patterns through interactive charts. Additionally, the app will support goal-setting, helping users save for specific financial objectives. Designed with ease of use in mind, Money Matters ensures that users can manage their finances with minimal effort. The app will offer intuitive navigation, simple data entry for expenses, and clear visual representations of financial data. By prioritizing efficiency and accessibility, Money Matters is designed to help users take control of their finances, make informed decisions, and improve their financial well-being in a convenient and secure way.

2.OBJECTIVES

Business Goals: The business goal of the Money Matters project is to develop an easy-to-use finance management app that helps users take control of their finances. By enabling expense tracking, budgeting, and spending insights, the app aims to support users in making informed financial decisions and building better financial habits.

Specific Outcomes:

- **Real-time Expense Tracking**: Provides instant updates on spending, helping users stay aware of their current financial status.

- **Customizable Monthly Spending Limits**: Allows users to set personalized budget limits, with alerts when nearing these limits to avoid overspending.

- **Transaction History with Category Breakdown**: Maintains a detailed record of expenses, organized by categories, for easy analysis of spending patterns and budgeting adjustments.

3.REQUIREMENTS

HARDWARE REQUIREMENTS

- **Processor**: Qualcomm Snapdragon 845 or equivalent (for smooth playback and seamless browsing)
- **Memory (RAM)**: 3GB minimum
- **Storage**: Minimum 100MB available for installation and additional space for downloaded podcasts
- **Internet connection**: Required for streaming and downloading episodes

SOFTWARE REQUIREMENTS

- **Operating System**: Android OS 7.0 (Nougat) or later

TOOLS AND VERSIONS

- **Programming Language**: Kotlin (version 1.5 or later)
- **Mobile Development Framework**: Android SDK (APIlevel 24 and above)
- **Database**: Room or SQLite (for managing downloaded episodes and user preferences)
- **Backend Integration**: Retrofit or OkHttp for REST APIcalls
  - **Cloud Storage and Streaming**: Firebase (for user preferences and playback position sync)
  - **Design**: XML and Material Design Components
  - **Version Control**: Git (version 2.31.1 or later)
  - **IDE**: Android Studio (version 4.2 or later)
  - **Project Management**: Jira or Trello (web-based)
  - **Documentation**: Markdown and Google Docs
  - **Communication**: Slack or Microsoft Teams for team collaboration

4.KEY FEATURES AND CONCEPTS UTILIZED

- **Add Items Expenses:** Users can easily add expenses foreach item they purchase. Each item can be categorized, helping users track their spending more effectively.
- **View Expense Summary:** The app provides a summary of the user's total expenses, including a list of individual items and their associated costs.
- **Date Filtering:** Users can filter their expenses based on specific time periods (e.g., daily, weekly, monthly). (Thisfeature is currently being updated.)
- **Expense History**: Users can access a history of all their past expenses, with details including item names, amounts, and dates.

CLONE THE REPOSITORY

To clone this project to your local machine, run the following command in your terminal:

bash

- Copy code
  git clone: https://github.com/madhanraj-veerakumar/Android-Project.git

- Open the Project

  o Open Android Studio

  o Select Open an existing Android Studio project.

  o Navigate to the directory where you cloned the repository and open it.

  o Build and Run

Once the project is loaded in Android Studio, click on the Run button (the green triangle icon).

Choose a connected device or emulator to launch the app.

USAGE

Once you have the app running, you can start using it as follows:

Add an Expense

- Navigate to the Add Expense screen.
- Input the name of the item, the amount spent, and choose an appropriate category for the expense.
- Press Save to record the expense.

Set Monthly Limit:

Navigate to the Monthly Limit section to set a spending cap for the month. This feature helps control expenses by setting a budget limit, and you'll receive alerts as you approach or exceed this limit, keeping your spending on track.

View Expense History

The History screen shows a complete list of all recorded expenses, including the item name, date, and amount.

Date Filter

Use the Date Filter feature (currently in development) toview your expenses based on a specific date range, such as daily, weekly, or monthly.

Libraries Used

This project uses the following libraries to enhance functionality:

Core

- Core KTX: androidx.core:core-ktx:1.7.0
- Lifecycle Runtime KTX: androidx.lifecycle:lifecycle-runtime-ktx:2.3.1

Jetpack Compose

- UI: androidx.compose.ui:ui:1.2.0
- UI Tooling Preview: androidx.compose.ui:ui-tooling-preview:1.2.0
- Material Components: androidx.compose.material:material:1.2.0
- Activity Compose: androidx.activity:activity-compose:1.3.1

Room (Database)

Room Common: androidx.room:room-common:2.5.1
Room KTX: androidx.room:room-ktx:2.5.1

Testing

- JUnit: junit:junit:4.13.2
- AndroidX JUnit: androidx.test.ext:junit:1.1.5
- Espresso   Core: androidx.test.espresso:espresso-core:3.5.1
- Compose UI Test: androidx.compose.ui:ui-test-junit4:1.2.0

Contributing

If you want to contribute to this project, feel free to follow the steps below:

- Fork the repository.
- Clone your fork to your local machine.
- Create a new branch for your feature (git checkout -b feature-name).
- Make changes and commit them (git commit -m'Added new feature').
- Push your changes to your fork (git push originfeature-name).
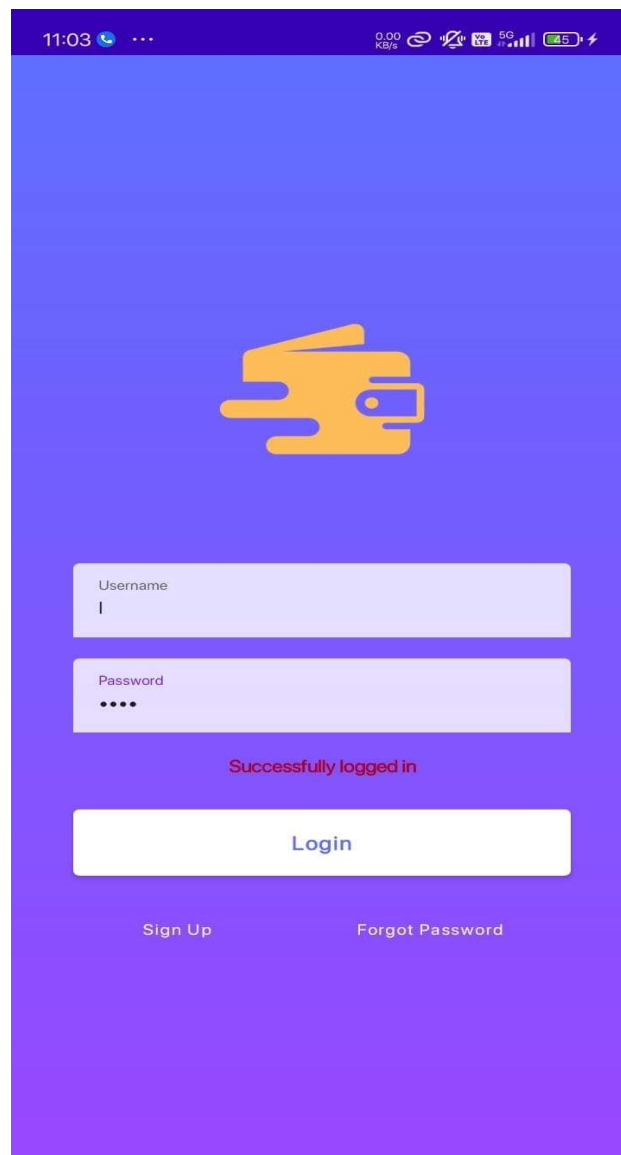- Open a Pull Request to merge your changes into themain repository.

4.DETAILED STEPS TO SOLUTION DESIGN

- **Data Models**: Room and SQLite databases to manage expense data.
- **User Interface Designs**: Android XML and Material Design Components for an intuitive UI.
- **Business Logic**: Kotlin for expense calculation, transaction recording, and budgeting features.

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SCREENSHOTS

Here are some screenshots of the application to showcase the app's UI and features

LOGIN PAGE

REGISTER PAGE

HOME SCREEN

ADD ITEM EXPENSE SCREEN

SET MONTHLY LIMIT

EXPENSE HISTORY VIEW

5.TESTING

Testing in this project focuses on ensuring that the Money Matters app functions correctly and meets specifications. The testing approach includes Module Testing, Integration Testing, and System Testing to verify the performance of individual components and the app as a whole.

1. Module Testing

Each module, such as expense tracking and budget setting, was tested independently to ensure its functionality. Module testing involved:

- Examining memory use and performance through Android Studio Profiler.

- Using the Android development console to monitor logs and debug messages, ensuring each module operates as expected.

2. Integration Testing

After modules were tested individually, they were integrated and tested together to verify that they work seamlessly:

- Integration: Modules were linked, and their interactions were monitored for bugs or inconsistencies.

- Error Correction: Identified issues were resolved to ensure smooth transitions and data flow between modules.

3. System Testing

The entire app was tested with sample data to validate that it meets project requirements and functions error-free:

- System Validation: Inputted sample expenses, budgets, and categories to verify the proper functionality of the app's main features.

- Requirement Fulfilment: Ensured that the app meets user needs, providing accurate expense summaries, budget alerts, and historical data.

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4. Software Testing: Test Case Matrix

Test Case	Expected Results	Actual Results	Pass/Fail
Add Expense	Should allow users to enter a new expense and save it under the correct category.	Successfully added expense and categorized correctly.	Pass
Set Monthly Limit	Should enable users to set a monthly budget and receive alerts as they approach this limit.	Users can set limits, and alerts are displayed when nearing the limit.	Pass
View Expense Summary	Should show a summary of all expenses and a category-based breakdown.	Summary displayed correctly with itemized breakdown.	Pass
Filter Expenses by Date	Should filter expense history based on selected date ranges like daily, weekly, or monthly.	Filter works accurately, displaying only expenses within the chosen date range.	Pass
Login (Positive Match)	Should verify user credentials and redirect to dashboard.	Correctly identifies users and grants access to the main dashboard.	Pass
Login (Negative Match)	Should decline access for incorrect credentials and show a message.	Access denied with an appropriate error message for incorrect credentials.	Pass

This testing approach ensures the app's stability and meets user requirements for accurate financial tracking and budget management.

6.KEY SCENARIOS ADDRESSED BY THE IMPLEMENTATION PROJECT

The Money Matters app offers a comprehensive solution for managing personal finances, addressing various user needs:

- **Real-time expense tracking**: Keeps track of daily expenses and provides an overview of spending habits.
- **Budget management**: Allows users to set and manage budgets, ensuring they stay within financial limits.
- **Custom alerts**: Sends notifications when users approach or exceed their set spending limits.
- **Expense filtering**: Offers options to view expenses based on specific time frames (daily, weekly, or monthly).

These features empower users to make informed financial decisions and maintain control over their spending.

7.ADVANTAGES OF MONEY MATTERS APP:

- **Financial Awareness:** Provides real-time tracking of expenses, helping users stay aware of their spending habits.
- **Budget Control:** Users can set budgets and receive alerts, ensuring they stick to their financial limits and avoid overspending.
- **Time-Saving:** Automated expense filtering by date (daily, weekly, monthly) makes it easy to analyze spending patterns without manual effort.
- **Customizable Alerts:** Customizable alerts help users manage their finances more effectively by notifying them when they approach spending limits.
- **Improved Financial Decision-Making:** Users can track trends, make informed choices, and adjust budgets based on their financial data.

8.CONCLUSION

The Money Matters project successfully delivers a personal finance management app that addresses core financial needs through an intuitive and user-friendly platform. By offering real-time expense tracking, budget controls, and the ability to set personalized financial goals, the app empowers users to take control of their finances effectively. Thoughtfully designed features such as expense categorization, monthly spending limits, and historical data visualization enable users to make informed financial decisions and enhance their money management skills. With secure backend support, interactive interfaces, and seamless integration with Android OS, Money Matters stands as a reliable tool for individuals aiming to improve their financial health. This project underscores the potential of mobile solutions in promoting financial literacy and independence.

9.REFERENCE

- **Git Project Link:**

    https://github.com/madhanraj-veerakumar/Android-Project.git

- **App Demo Drive Link:**

    https://drive.google.com/drive/folders/1iq0oMk3CFskEp76yJm5M3wLT0hSYs7S3?usp=sharing