

# Expense Manager Flutter Application

Prithvish Rahul P, Mohd Tajammul

School of CS & IT, Jain University, Bangalore, Karnataka, India

## ABSTRACT

Expense trackers are smartphone apps that keep track of a user's spending and provide a detailed picture of their daily, monthly, or annual spending. This study looks into spending tracker apps that are deficient in terms of user experience and data collection.

The proposed expense tracker will provide a better experience for the user by incorporating information from text messages about financial transactions such as debit and credit of his/her funds. The user can also enter an initial budget for a week, month, or year, and the expense tracker will keep him up to date or alert him if his expenses exceed his weekly, monthly, or yearly budget.

**KEYWORDS:** *Android, MongoDB, Flutter, Cross-platform, Cloud backup, Expense Manager, Budgeting Tools, Financial Planning, Expense Tracker, Money management, Android studio*

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## I. INTRODUCTION

Users can use this application to keep a digitally automated journal. Each user will be needed to register on the system at which time they will be given an id that will be used to keep track of each individual user. Expense Tracker is an application that keeps track of a user's income and expenses on a daily basis. This programme divides the user's income into the daily expenses allowed. If you exceed that day's expense, it will be deducted from your income and replaced with a new daily spending allowance; if that day's expense is less, it will be saved. At the conclusion of each month, the expense tracking programme will provide a report that displays income and expense in multiple graphs.

Following are the brief explanation about the technology used to build the product: -

### A. Android

Android is a full set of software for mobile devices such as tablets, laptops, smartphones, e-readers, set-top boxes, and other similar devices. It includes a Linux-based operating system, middleware, and critical mobile apps.[24]

It's comparable to a mobile operating system. However, it is not confined to mobile devices. It's

now found in a variety of devices, including phones, tablets, and televisions.[24]

### B. Flutter

In general, developing a mobile application is a difficult and time-consuming task. There are numerous frameworks that offer fantastic functionality for developing mobile applications. Android has a native framework for developing mobile apps that is based on Java and Kotlin, whereas iOS has a framework that is based on Objective-C/Swift. As a result, we'll need two different languages and frameworks to create apps for both operating systems. To combat this complexity, numerous frameworks have been developed that handle both operating systems and desktop applications. Cross-platform development tools are the name for these frameworks.[1]

Flutter is a Google open-source framework for creating multi-platform, natively built applications from a single codebase.[1]

Flutter is distinct from other frameworks in that it does not rely on Web View or the device's OEM widgets. Instead, it draws widgets with its own high-performance rendering engine. Most of its systems,

such as animation, gesture, and widgets, are written on the Dart programming language, which allows developers to simply read, alter, replace, or remove anything. It allows developers complete control over the system.[1]

### C. MongoDB

The technique for storing and retrieving data is provided by a database management system.[2] Different types of database management systems exist:

- RDBMS (Relational Database Management System) (Relational Database Management Systems)
- OLAP (Online Analytical Processing) (Online Analytical Processing)
- NoSQL database (Not only SQL)

Relational databases, such as MySQL, are not the same as NoSQL databases. Before you can actually put data into a relational database, you must first construct the table, specify the structure, and set the data types of fields, among other things. You don't have to worry about it with NoSQL because you can insert and update data on the fly.[2]

One of the benefits of NoSQL databases is that they are extremely easy to scale and perform substantially faster in the majority of database operations. There are times when a relational database is preferable to a NoSQL database, however when dealing with large amounts of data, a NoSQL database is the best option.[2]

MongoDB is a document-oriented database that is open source and holds data in the form of documents (key and value pairs). Document-based databases are one sort of NoSQL database, as we mentioned in our previous course (NoSQL introduction).[2]

### D. SQLite

SQLite is a software library that creates a transactional SQL database engine that is self-contained, serverless, and requires no configuration. SQLite is the world's most extensively used SQL database engine. SQLite's source code is available in the public domain. This lesson will provide you with a fast introduction to SQLite and help you become familiar with SQLite programming.

## II. LITERATURE REVIEW

The application "Walnut" has similar functionality in that it keeps track of user costs and generates detailed reports based on the type of user expense [4]. Walnut requires credit/debit card information from users in order to keep track of their spending. [3] The

application "Money Manager" makes managing personal finances as easy as pie! Now easily record your personal and business financial transactions, generate spending reports, review your daily, weekly and monthly financial data and manage your assets with Money Manager's spending tracker and budget planner.[5]

The following are the features of the app "Expense Manager": Keeping track of spending and incomes Split Transaction - In a single transaction, record all items with varied categories and amounts. Expenses and revenue that occur on a regular basis, Multiple accounts, snapping a picture of a receipt, monitoring tax, tracking mileage, tracking debts, and using a credit card are all things that may be done with a credit card. [8]

The application "Expense Manager" is a straightforward, user-friendly, stable, and feature-rich app created specifically for you. Everything you need to keep track of your spending, cheque book, and budgeting is there at your fingertips. Money Manager makes personal financial management a piece of cake! With Money Manager's spending tracker and budget planner, you can effortlessly record personal and company financial transactions, generate expenditure reports, evaluate your daily, weekly, and monthly financial statistics, and manage your assets. [6]

The application "Daily Expense: Expense Manager" allows users to conveniently and swiftly track and manage daily costs. With this finest cost manager software, you can quickly manage your revenues, expenses, daily cash, bills, and more. [7]

My Money Manager is an app that allows you to keep track of your income, expenses, and savings. Attractive graphs that display your earnings and savings that can genuinely help you track and save your hard-earned money. [9]

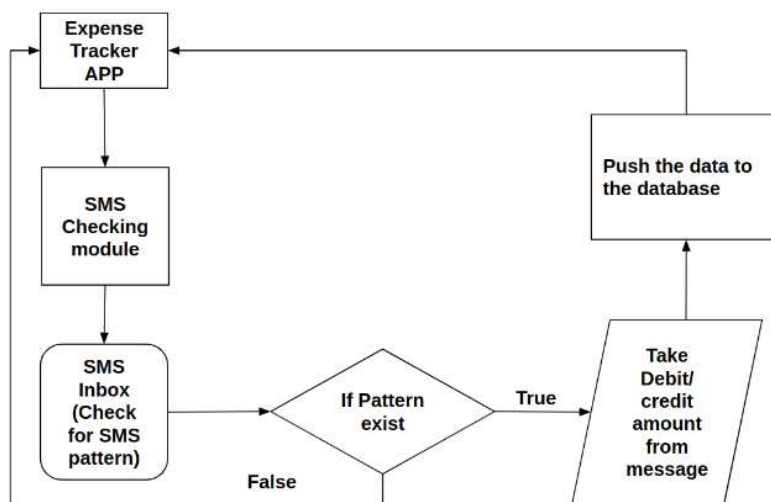
## III. PROBLEM FORMULATION

Traditional cost tracker methods involved bookkeeping methodologies or keeping track of their expenses in MS-excel workbooks, which are insecure due to the possibility of losing the excel workbook file or the ledger.

Existing applications, however, have overcome the difficulty of the traditional expense tracker methodology's lack of offering a nice user experience and preserving user data in a secure manner by requesting sensitive information such as the user's credit/debit card information.

## IV. OVERVIEW OF THE APPLICATION

### A. System Architecture



**Fig.1: System architecture of proposed system**

Fig 1 shows the system architecture, which employs the flutter framework for routing and Java in the backend to perform logical operations and store user expense data in the database. To access his spending manager, the user must input his four-digit pin. [10-24]

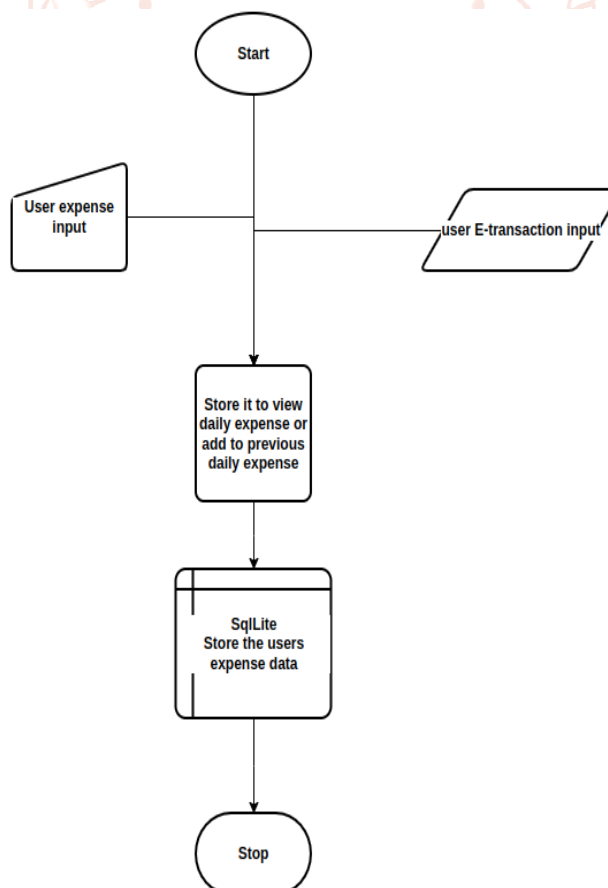
#### Telephony.Sms.Inbox

The Inbox Android API is used to check for bank statement messages that are sent to the user's inbox on a regular basis. This android API will allow the app to read the user's inbox SMS and, if necessary, accept expense input automatically. [3]

The org.eazegraph.lib.charts.PieChart module is used to create the pie chart of user costs that will be displayed on the application's home screen.[4]

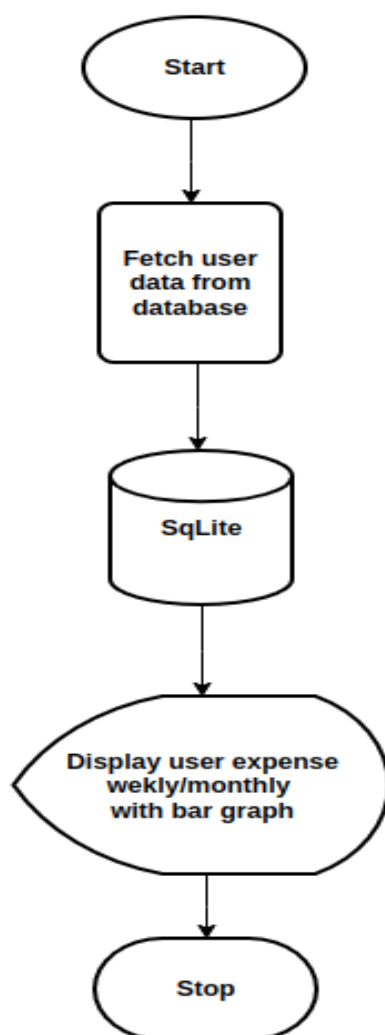
If the user's weekly, monthly, or annual budget is exceeded, an alert will be issued to him.

### B. Application Workflow



**Fig 1.1: Input Workflow of the proposed application**

Fig 1.1 shows the application workflow of inputs & storing user expenses in database.



**Fig 1.2: Data retrieval of user from Database**

Fig 1.2 shows the workflow of user data getting retrieved from database & displaying user weekly/monthly expense with a bar graph

### C. Application Modules

The proposed system involves following module: -

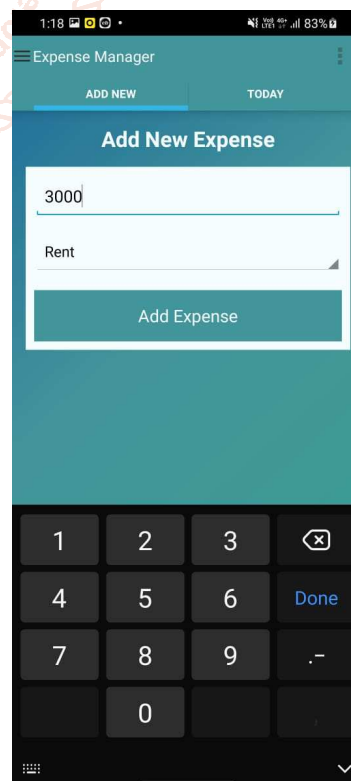
#### ➤ Expense module

In this module user logs in to the application & provide his/her expenses or if user has performed a e-transaction the bank SMS will be read by the app & automatically.

#### ➤ Add expense module

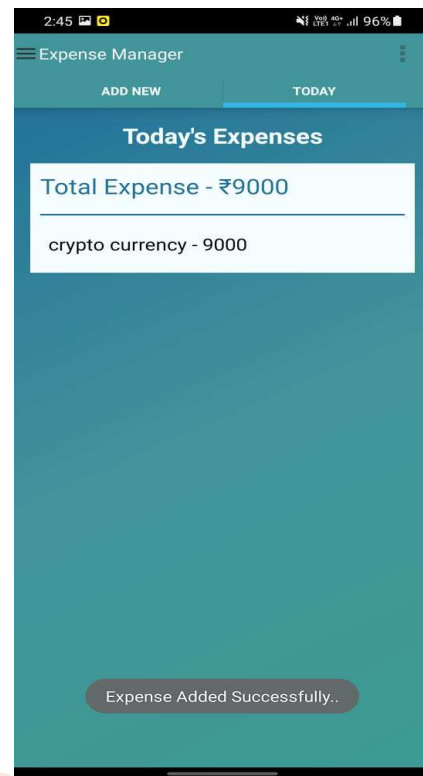
In this module user need to manually enter his expense & purpose for expense.

the expense of the user is automatically updated by reading the e-transaction message.



### ➤ Add expense category module

In this module user can add a new category of expense

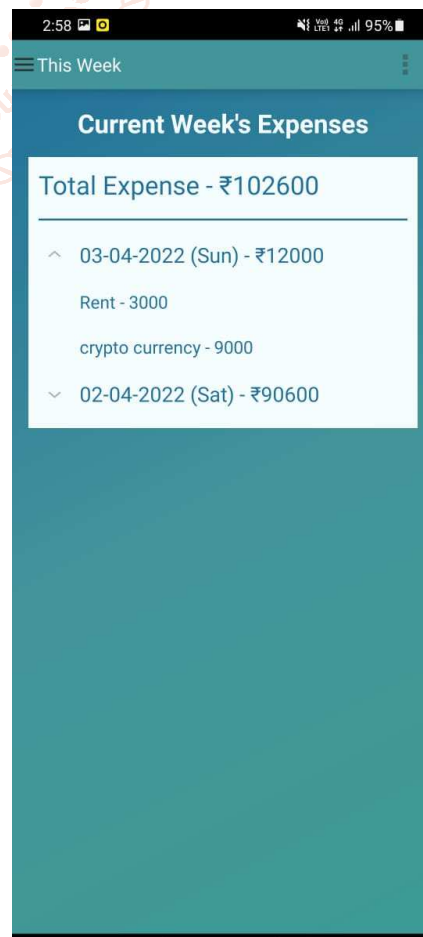
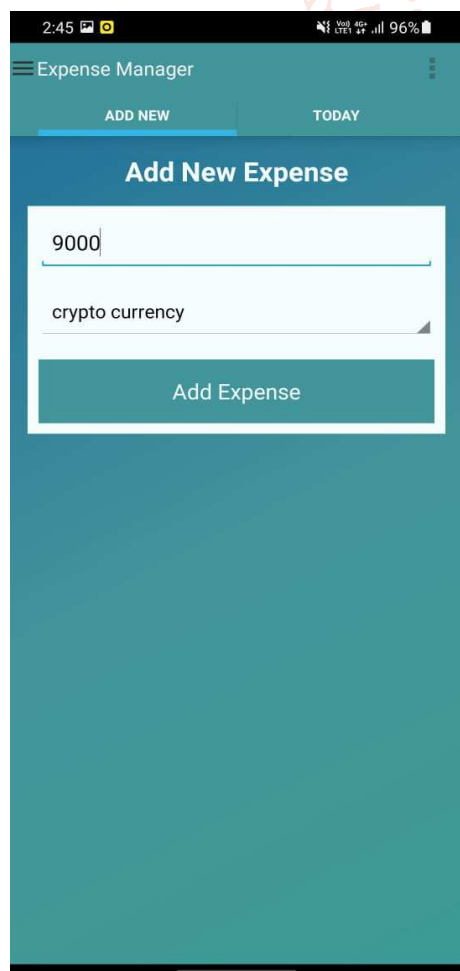


### ➤ View expense module

In this module user can view daily/monthly expense with a Bar graph which might help user in analyzing his expense in a better way based on category of expense.

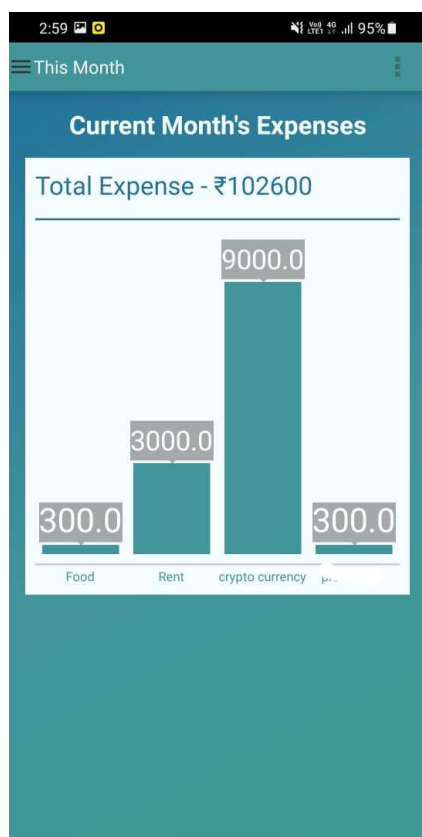
### ➤ Daily expense module

This module helps user in viewing his daily & weekly expense with date



### ➤ Monthly expense module

This module helps user in viewing his monthly expense with a bar graph.



## V. CONCLUSION & FUTURE SCOPE

In this article, surveyed at different apps and methodologies for tracking user expenses. This allows us to comprehend the drawbacks of the current spending tracking smartphone application.

The proposed solution offers a nice user interface, does not ask for sensitive information such as credit card numbers, and provides a cloud backup of the user's data in the form of a .csv file.

### A. FUTURE SCOPE

The following are some future features that could be added to the suggested solution in future:

- Providing shared ledger maintenance
- Adding a crypto wallet function
- Providing a checklist to write down the payments that have been made or that will be made in the near future.

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- [4] Walnut Expense tracker: <https://play.google.com/store/apps/details?id=com.daamitt.walnut.app&hl=en>
- [5] Money manager: <https://play.google.com/store/apps/details?id=com.realbyteapps.moneymanagerfree&hl=en>
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