

A Review on Budget Estimator Android Application

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Abstract - In existing, we need to maintain the excel sheets, csv etc. files for the user daily and monthly expenses. In existing, there is no as such complete solution to keep a track of its daily expenditure easily. to do so a person as to keep a log in a diary or in a computer, also all the calculations needs to be done by the user which may sometimes results in errors leading to losses. This project is about mobile application Expenses system with geo-location tracking, Based on the location of the user, it using Google Places, to check, the available store in the area, provides a notification for offers purpose, In term of security design, this system may implement a login authentication such as OTP message to your mobile device, this function may bring more security confidence to user.

Key Words: Google Places, Ionic, Angular, Budget, Android

1. INTRODUCTION

In existing, we need to maintain the excel sheets, csv etc. files for the user daily and monthly expenses. In existing, there is no as such complete solution to keep a track of its daily expenditure easily. to do so a person as to keep a log in a diary or in a computer, also all the calculations needs to be done by the user which may sometimes results in errors leading to losses. to reduce manual calculations, we propose an application which is developed by android. this application allows users to maintain a digital automated diary. each user will be required to register on the system at registration time, the user will be provided id, which will be used to maintain the record of each unique user. Expense Tracker application which will keep a track of income-expense of a user on a day to day basis. this application takes income from user and divides in daily expense allowed. if u exceed that days expense it will cut if from your income and give new daily expense allowed amount, and if that days expense is less it will add it in savings. Expense tracking application will generate report at the end of month to show income-expense via multiple graphs. it will let you add the savings amount which you had saved. The propose application may cut down the operational time when user used the expenses application. The application must able to handle their need and easy to use, this may help them a lot on overcome over budget problem, keep budget on the track, planning their financial status, with worry less and also can prevent crisis occur. With the expenses budget system, user can plan ahead, when accident occur, it able to react well. The Expense Manager is a mobile application intended to run on android device namely smart phone. Expense Manager is designed to efficiently cater the needs of users by eliminating. In additional, with the financial expenses application, it able to knows user own habit on spending too much on particular categories.

1.1 LITERATURE REVIEW

The Expense Manager is a mobile application intended to run on android device namely smart phone. Expense Manager is designed to efficiently cater the needs of users by eliminating imparting costs and settling vows to friends. The application encourages corresponding users help in who owes who, and for what. Aim is use better approaches to help users and their companions to share expenses easily. This new application will let bunch users and their companions to have detailed view inside this application around individual costs. The app allows its users to add a remark to an expense, click on the expense name in any expense list. Bill posting will have space for comments and notes container with a "Post" catch underneath. The Expense Manager has notification option to notify each time somebody adds a remark to an expense user is on, or user can withdraw to posted bill. The additional feature that we are going to add in this application that enable us to collect the sample data of users expenses and use this to study patterns of expenses in certain area or by specific kinds of spending for market analysis. These patterns can be derived using some data mining techniques [1][2][3][4] such as clustering, classification and association.

Some of the conventional methods used to tackle this problem in normal circumstances are like making use of a sticky note by normal users, Proficient people deal with this kind problems by using spreadsheet to record expenses and using a ledger to maintain large amounts data by especially by experts. As this shows that it is variable methods used by different people. This makes using this data inconsistent. There are still problems in areas like there is no assurance for data consistency, there are chances of critical inputs can be missed and the manual errors may creep in. The Data recorders are not always handy and it could be hectic process to have overall view of those expenses. We believe a handy design a handy mobile application which handles these problems. Such that app is capable of recording the expenses and giving comprehensive view with easy to use user interface and this app is intelligent enough to answer : ' Who owes who ? And

by how much ??' [5]. The mobile applications that are available in the market are very useful to the smartphone users and make their life easy. imparting costs and settling vows to friends. The application encourages corresponding users help in who owes who, and for what. Aim is use better approaches to help users and their in the field of expenditures of user. This idea serves as main objective of research project. The research also includes syncing of the applications with some social networks and emails as well[6].

This section of paper is very important and this will guide our team to successfully accomplish the goals set for research. Here, the research project methodology describes the steps and approaches to be followed to attain final product. As explained above our project is of splitting the expenses between the groups and also to efficiently manage the personal expenses as well. However, our projects will have additional features included as part of our research so that it makes our project unique in the market. These features would make the project more efficient and very useful for our users. Apart from the benefits user gets and there is an important use of the system that enables us to use the data of the user with his prior permissions for the purpose of data mining for several other functionalities to be applied in market by analyzing user expenses[7][8][9]. suggest that this trend plays a bigger part in driving upgrades to existing computer systems than technological advancements.

1.2 PROPOSED SYSTEM

The system known as Budget Estimator is designed to manage the application user's daily expenses in a more efficient and manageable way. By using this application we can reduce the manual calculations for their daily expenses and keep the track of the expenditure. This project is about mobile application Expenses system with geo-location tracking. Based on the location of the user, it using Google Places, to check, the available store in the area, provides a notification for offers purpose. In term of security design, this system may implement a login authentication such as OTP message to your mobile device, this function may bring more security confidence to user. To reduce manual calculations, we propose an application which is developed by android. this application allows users to maintain a digital automated diary. each user will be required to register on the system at registration time, the user will be provided id, which will be used to maintain the record of each unique user. expense tracker application which will keep a track of income-expense of a user on a day to day basis. this application takes income from user and divides in daily expense allowed. if u exceed that days expense it will cut if from your income and give new daily expense allowed amount, and if that days expense is less it will add it in savings. expense tracking application will generate report at the end of month to show income-expense via multiple graphs. it will let you add the savings amount which you had saved for some particular festivals or day like birthday or anniversary. To be used efficiently, all computer software needs certain hardware components or the other software resources to be present on a computer. These prerequisites are known as (computer) system requirements and are often used as a guideline as opposed to an absolute rule. Most software defines two sets of system requirements: minimum and recommended. With increasing demand for higher processing power and resources in newer versions of software, system requirements tend to increase over time. Industry analysts

Stop



Fig. 1 Flowchart Of Budget Estiator applicatioo

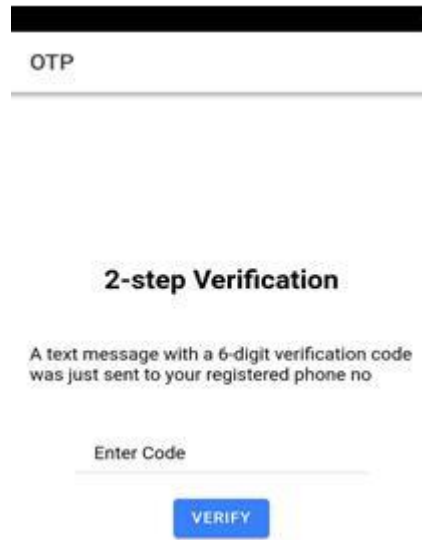


Fig. 2 Security Module

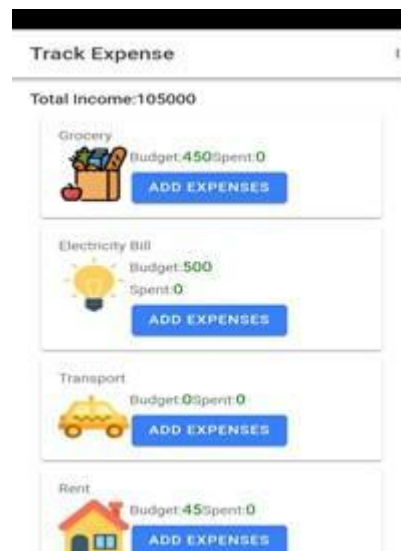


Fig. 3 Expeose Module

2. METHODOLOGY

Framework used to develop an application:

We used angular ionic framework to develop a budget estimator mobile application because this framework provides us many inbuilt native functionalities, also this is a simple mobile application we do not required any GPU support to run this application, the major advantage is when we develop any application using angular ionic framework then it has capability to run on all platforms like android, ios, windows.

1) Algorithm to implement 2-step verification method:

We use Firebase Authentication to sign in a user by sending an SMS message to the user's phone. The user signs in using a one-time code contained in the SMS message.

1) Enable Phone Number sign-in for your Firebase:

To sign in users by SMS, user must first enable the Phone Number sign-in method for your Firebase project, then pass their phone number to the PhoneAuthProvider.verify PhoneNumber method to request that Firebase verify the users phone number

2) Send a verification code to the user's phone and verify it:

After the user enters the verification code that Firebase sent to the user's phone, create a PhoneAuthCredential object, using the verification code and the verification ID that was passed to the onCodeSent or onCodeAutoRetrievalTimeout callback.

3) Sign in the user:

After you get a PhoneAuthCredential object, whether in the onVerificationCompleted callback or by calling PhoneAuthProvider.getCredential, complete the sign-in flow by passing the PhoneAuthCredential object to FirebaseAuth.signInWithCredential

2) Algorithm to show offers in nearby places:

1) Google places API:

The Places API is a service that returns information about places using HTTP requests. Places are defined within this API as establishments, geographic locations, or prominent points of interest.

2) Haversine Algorithm:

This uses the 'haversine' formula to calculate the great-circle distance between two points – that is, the shortest distance over the earth's surface – giving an 'as-the-crow-flies' distance between the points.

Haversine $a = \sin^2(\Delta\phi/2) + \cos \phi_1 \cdot \cos \phi_2 \cdot \sin^2(\Delta\lambda/2)$

formula:

$$c = 2 \cdot \text{atan2}(\sqrt{a}, \sqrt{1-a})$$

$$d = R \cdot c$$

ϕ is latitude, λ is longitude, R is earth's radius (mean radius = 6,371km);

note that angles need to be in radians to pass to

where trig functions!

```
var R = 6371e3; // metres
```

```
var  $\phi_1$  = lat1.toRadians();
```

```
var  $\phi_2$  = lat2.toRadians();
```

```
var  $\Delta\phi$  = (lat2-lat1).toRadians(); var  $\Delta\lambda$  = (lon2-lon1).toRadians();
```

```
var a = Math.sin( $\Delta\phi/2$ ) * Math.sin( $\Delta\phi/2$ ) +
```

```
Math.cos( $\phi_1$ ) * Math.cos( $\phi_2$ ) * Math.sin( $\Delta\lambda/2$ ) * Math.sin( $\Delta\lambda/2$ );
```

```
var c = 2 * Math.atan2(Math.sqrt(a), Math.sqrt(1-a));
```

JavaScript:

```
var d = R * c;
```

We take the current location and distance in radius from user to show the offers. Using google places API it will take the latitude and longitude of users current location and processes it using "Haversine Algorithm" with the places latitude and longitude which are in the range of radius entered by user, and show the offers in the nearby places.

In this module user selects the categories like glossary, food, light bill, water bill, etc as per he want to add expense of that month.

5) *View Offers:*

In this module as per user requirement it will show the offers on particular category in nearby shops within the range selected by the user.

6) *Logout:*

This module provide the logout application functionality.

2.2 FUTURE SCOPE

1. Able to include a payment method to this existing expenses system. For example, once a PayPal payment made, the record will automatically inserted to Geo-Location Expenses application.

2. The Geo-Location Expenses may also come with storage backup plan. For example, user data can be hosted to cloud storage/drive to avoid data lost.

3. In term of security design for future, Geo-Location Expenses system may implement a login authentication such as Facebook login, this function may bring more security confidence to user.

4. 2.1 IMPLEMENTATION

Overview of Modules:

1) *Login & Registration Module:*

Each user will be required to register on the system at registration time, the user will be provided id, which will be used to maintain the record of each unique user. This application provides the persistence login facility to the users.

2) *Security Model:*

Two step verification method is provided to ensure the security.

3) *Income Model:*

In this module user have to add expense and salary deatail s.

if user exceeds the expense amount then it will show the offers on that particular category in nearby shops within the range selected by the user.

4) *Select categories:*

3. CONCLUSION

we have implemented the budget estimator mobile application with 2-step verification method implementation which provides the security to the users and it will manage the users expense by providing offers facility within the range in terms of radius(range will be provided by the users).Therefore in this application we added the two advanced functionality to the existing system.

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