ITB21 EXPENSE MANAGER

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1. Abstract

We present an intelligent expense tracker to efficiently manage the monthly expenses. Our system will help everyone who are planning to know their expenses and save from it. The user will be given the facility to set a monthly limit and if the user crosses that limit our app will notify the user about the same. The user can give receipts as an input, using AI our app will sort it into different categories. Here user can also define their own categories like food, clothing, rent and bills and the user can also set limits for a particular category. User will be provided with visual statistics of expenses by transaction date or by category. This project is not indented for a particular user or age group but anyone and everyone who wants to track their expense can use this app. So, the general idea of this Project is to help people view and study their overall expenditure pattern by developing a mobile application to analyze all the purchases made by the user by simply scanning the receipts.

2. Introduction/Theory

In order to trace their expenses, People generally use traditional paper system to stay the record of their income and expenditures. this sort of traditional system is burdensome and takes longer. So, there must be a management system which must help us to manage our daily earnings and expenses easily, and also helps us to find the records efficiently. So, we puzzled out the simplest way to eliminate the normal system with digital, portable, easier and easy to record these data in precisely few clicks with our Android application called "Expense Manager". The thought of this Project is to assist people view and study their overall expenditure analysis with the assistance of a mobile app to research all the purchases made by the user by simply scanning all the bills and receipts. The User should just click a picture of a receipt or choose one from the Gallery and track their payments. Using machine learning, the app is able to group items category-wise, for example- food, clothes, stationery, etc. The User can monitor his/her expenses and analyze them categorically using graphs and tables, enabling them to raised understand their expense patterns and help them spend intelligently. Our main aim is to create our users capable of achieving Personal Life goals by giving them the flexibility to – monitor their expenses; analyze the buying trends; and assess budget for future transactions.

3. Problem Statement

As we know, a lot of people continuously struggle to keep up with their regular expenses and most of the times fail to control or manage their budget. This is often caused because of lack of structural maintenance of their expenses and budget which leads to over expenditure. General survey suggests that 67% of individuals are unaware about where their money goes, 80% are constantly worried and stressed about their finances and most of them spend and save in haphazard manner. Therefore, there is a need for an organized platform to help understand users about their spending's and ensure a better expense pattern in future.
The Aim and Objective of the project is to entirely manage and track the daily expenses of our Consumers; And to understand their needs and provide them a platform capable of monitoring all their Expenses through scanned receipts.

4. Implementation

A. Receipt Recognition
In the proposed system we are using Image Processing libraries provided by python to process the receipts provided by the user**.** Image processing basically includes the following three steps:
• Importing the image via image processing tools;
• Analyzing, manipulating the image;
• Proving an output which can be an altered image or conclusion based on image analysis.
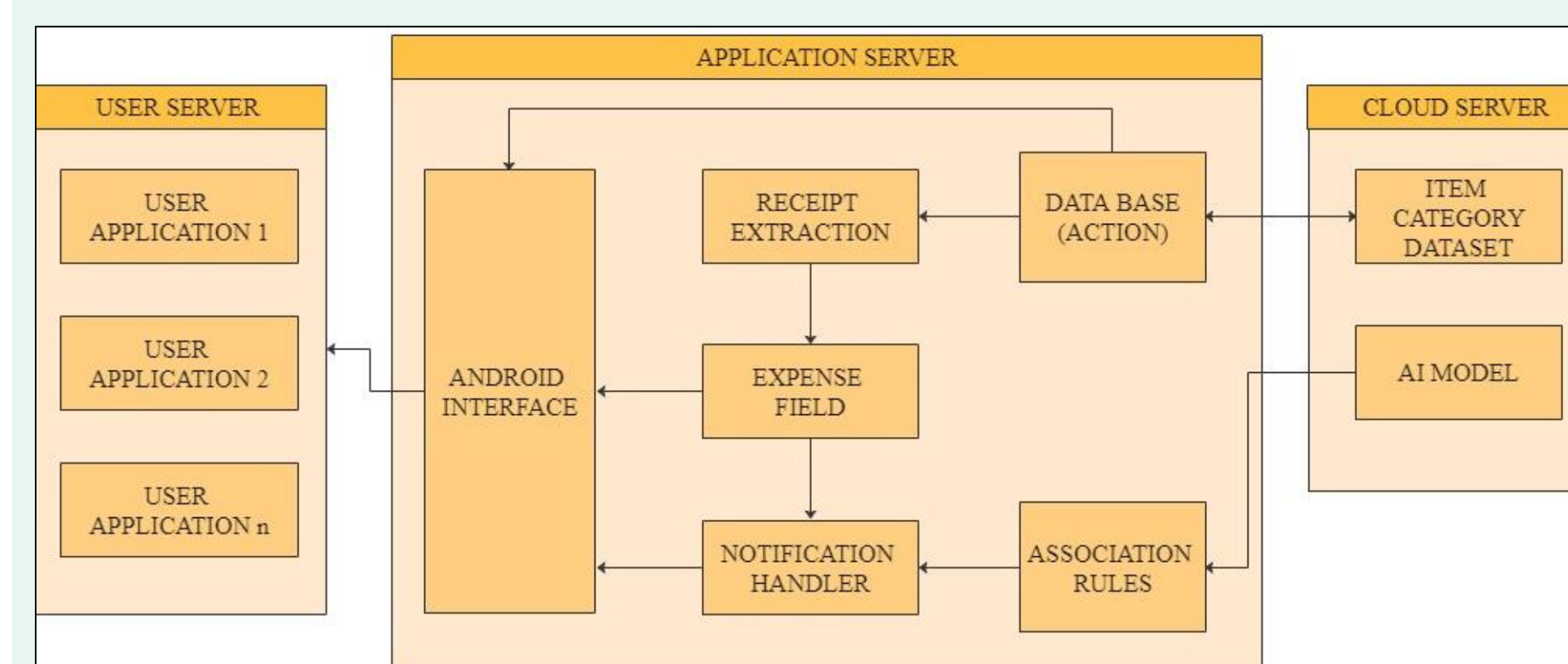
B. Sorting Items into Different Categories
The application will use keywords such as Product and its Price from the receipts and categorize them into various categories. These categories will be general classes such as Groceries, Clothing, Stationery, etc. These Products will be matched against a big database of such categories which will help determine the product category. Once all the Products are sorted, the User will be able to view the expenses according to categories helping them analyze their expenses better.

C. MPAndroidChart
The MPAndroidChart library is used to create beautiful, customized and animated charts. Pie charts, line graphs, bar graphs are used in this project to give the users visual representation of their expenses. The users can view these graphical reports either by transaction date or by category. Adding graphs and charts will make information clearer and therefore improve the user experience.

5. Results

In this project we implemented image processing libraries- OpenCV and PIL to recognize the text in scanned receipts and bills. The input receipts were successfully processed to give necessary outputs such as date of transaction, item name and cost of the item. This extracted data was satisfactorily sorted into different categories and was displayed to the user in the form of bar graph as shown below. The above pie chart displays expenses done by the user in each category converted to percentage. The conclusion that can be derived from the above chart is that maximum expense lies in housing category while minimum lies in medical category i.e., 46.6% and 9% respectively. The third important feature of the application of giving timely suggestions to the user was also successfully implemented.

6. Conclusion

We have presented a working prototype of intelligent expense tracker. The development of this application has been conducted in a stepwise manner using the well-defined methodology, customized according to the requirements of the system. This application will successfully help all those people who wants to track their expenses to get a better sense of their expenditure thereby promoting savings. The development of this application has been conducted in a stepwise manner using the well-defined methodology, customized according to the requirements of the system. Most of the goals set at the beginning of the development phase have been met. Future work can be like we can integrate this app with any of our credit / debit / cash card & keep track directly from our saving account. Once when we start doing that this will help us to update details automatically rather than updating in manually.

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