INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN COMPUTER & COMMUNICATION ENGINEERING

INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA

Impact Factor: 8.379

Finance Management Application Using Firebase and Flutter Flow

Namrathashree G, Manaswini L J, Pulkit Srivastava, Vrunda Kulkarni, Ms.Rajashree D Ingale

UG Student, Dept. of ISE, AMC Engineering College, VTU University, Bengaluru, India

UG Student, Dept. of ISE, AMC Engineering College, VTU University, Bengaluru, India

UG Student, Dept. of ISE, AMC Engineering College, VTU University, Bengaluru, India

UG Student, Dept. of ISE, AMC Engineering College, VTU University, Bengaluru, India

Assistant Professor, Dept. of ISE., AMC Engineering College, VTU University, Bengaluru, India

ABSTRACT: FinancialManagementrefers to the applicationof general management principles to the various financial resources which are projecting. This encompasses planning, organizing, directing, and controlling of the financial activities. Financial planning is process of framing objectives, policies, procedures, programs, and budgets regarding the financial activities. This ensures effective and adequate financial and investment policies, adequate funds have to be ensured, ensuring a reasonable balance between outflow and inflow of funds, ensuringsuppliers of funds, preparation of growth and expansion programs which helps in long-run survival of the company, reduction of uncertainties with regards to changing market trends which the company could be faced with, ensuring stability and profitability.In this finance management application, the user bank account is linked to application. The application is a software program that facilitates the facilitates the management of finance. Types of finance applications include accounts payable software-allows an individual to stay on top of outstanding payments and make sure all payments are made correctly and on time. Finance management software is useful for managing the finance more effectively.

KEYWORDS: Finance Management, Financial Planning, Growth and Expansion, Bank, Investments

I. INTRODUCTION

In finance management application user can maintain his finance efficiently. It isvery helpful for people to improve themselves to become financially literate. User will be provided with a learning module as it behaves as a guide to him. Our application will be directly linked to the bank and then the finance will be categorized into three categories i.e., needs, expenditure and savings. Any bills i.e water, housing etc will come under needs. Any expenses i.e. shopping clothes, shoes etc will come under expenditure. Savings will also depend on short term and long term. Based on the user's risk capacity he can choose whether hewants long term or short- term goals. When the goal is set from the savings category the money will be automatically deducted and then it can be put for mutual funds. Some features in our app are maintaining transaction records. It gives an alert when the user has bill dues.

The coupons and rewards will be given by the app if the user has good managing score. A unique credit feature wherein the app can generate the loan if the user doesn't have sufficient balance. Based on user's capacity and his capacity to manage the risk will suggest him manage the finance accordingly. If in case the user debits from account, then it will be equally deducted from needs and expenditure. At the end of month if the user has saved amount in needs and expensethen it will be added to the savings category. Later the next month's salary will be divided again.

II. RELATED WORK

Aijaz A. Shaikh *et. al*, [1] Using the theory, construct, method, moderator (TCMM) format, this framework-based review critically analyses the mobile financial services (MFSs) field through a detailed synthesis and analysis of a sample of mainstream empirical research published in various scientific journals within the period 2009–2020. **Matewos Kebede *et. al.,* [2]** The objective of this paper is to present a review and synthesis of recent studies on financial literacy and related issues. Starting with review of prior literature surveys, the current study advances personal finance literature by presenting recent studies on financial literacy, the link between financial literacy and financial management behavior, and financial inclusion. And showed that people, even in developed world, lacks basic knowledge, skill, and attitude for

optimal personal financial management decisions. As a result, enhancing financial literacy and personal finance education becomes relevant policy in developed and high-income countries since the mid-1900s. A recent academic and policy interest in developing countries, albeit large scale surveys are lacking, show increasing global relevance financial literacy and savvy financial behavior for socio economic health of a nation. Recent studies from emerging and developing countries confirmed low level of financial literacy and its correlation with being female, young or old, unemployed, having low educational attainment, low income, and living in rural area however few studies found some demographic variables insignificant. **K. Ohmori *et. al.*, [3]** An Internet accounting system, where transactions are entered on the spot and business data created by transactions are distributed to appropriate staff of the company, becomes more important for companies operating worldwide. The Internet accounting system described in this paper consists of a three-tier structure: Web, application and database servers. The accounting system provides complete accounting functions including general ledger, accounts payable, accounts receivable, purchase order, sales order, inventory management, fixed assets, temporary payment, multi-users, multi-currencies, multicompanies and multi- languages allowing customer relation management, partner relation management, supply chain management and performance analysis. **Friedrich Wiemer *et. al.,* [4]** Using passwords for user authentication is still the most common method for many internet services and attacks on the password databases pose a severe threat. To reduce this risk, servers store password hashes, which were generated using special password-hashing functions, to slow down guessing attacks. The most frequently used functions of this type are PBKDF2, bcrypt and scrypt. In this paper, we present a novel, flexible, high- speed implementation of a bcrypt password search system. The design consists of 40 parallel bcrypt cores running at 100 MHz. Our implementation outperforms all currently available implementations and improves password attacks on the same platform by at least 42%, computing 6,511 passwords per second for a cost parameter of 5.

III. PROPOSED ALGORITHM

A. *Design Considerations:*

- VS code:Visual Studio Code, also commonly referred to as VS Code, is a source-code editor made by Microsoft with the Electron Framework, for Windows, Linux and macOS.
- Flutter:Flutter is a cross-platform app development framework that allows developers to create high-performance, visually appealing mobile apps for both Android and iOS platforms using a single codebase.
- Firebase:Firebase is a mobile and web application development platform that offers a suite of backend services for app developers.
- Windows/Mac
- Android/IOS
- RAM 8GB
- Processor 64 bit

B. *Description of the Proposed Algorithm:*

This application is having an intuitive and user-friendly interface that makes it easy for users to navigate and use the various features.Users can able to categorize their expenses, savings and needs part and also view reports that show their spending patterns.In this application it allows users to track their investments, view performance reports, and make informed investment decisions.The application is secure and protect users sensitive financial information. This finance management application is designed withthe user in mind, offering a comprehensive and user-friendly solution to manage their finances effectively.

Step 1: User Account

The user must provide the Gmail address in order to verify it so that a new account can be created for this finance application.Once the Email address gets verified the user can fill in the details and create his account in the application.Details of the users who are using this application are maintained in a database.

Step 2: Amount Splitting

Amount is entered and it is automatically split into needs, expenses and savings by default. The percentages for all the 3 categories can be edited by the user as per his convenience.The entered amount gets split into the 3 categories as per the percentages mentioned by the user.The user can view each page of the categories and perform transactions

Step 3: Needs Section:

The user can also view his income and spendings in the need category.The user can add the details of whom he is going to pay for and can pay accordingly. After payment, the transaction gets updated.

Autopay lets the user to enter thedetails of the payer and select the date and time for the transaction to happen.

Step 4: Expense Section:

Select the account pay button and add in the details of the payer and perform the transaction.QR code functionality is also added for performing transactions in the expense section.

Step 5: Savings Section:

In manual investment, the user must select risk capacity of his investment. Based on the risk capacity a list of stocks will be displayed for the user to invest in. The user should select a stock and make his investment.In automatic investment, user must select amount, risk and years of investment and the amount will be directed to the backend team for investing the amount in best stock.

Step 6: Default and Additional Plans:

The emergency funds must be 6 times the expense category funds else the user can change it based on the requirement. EMI amount is entered, and emergency funds is displayed having target amount and collected funds.Both EMI and target amount can be changes by the user. The car plan is displayed with target amount and collected funds. New planscan also be added based on user's requirements.

IV. PSEUDO CODE

Step 1: Add Email address and verify it
Step 2: Create Account
Step 3: Add amount to split
Step 4: If (selected category == Needs)
      Enter the Payee details and date and time for automatic transaction
    If (selected category == Expense)
      Enter details of Payee or use QR code for performing transaction.
     If(Selected category == Savings)
  Select type of investment and enter details in it.
Step 5: Select a default plan
Step 6: Enter the details of the selected default plan
Step 7: Add new plan
Step 8: Add details for new plan
Step 9: End

V. SIMULATION RESULTS

The user must provide the Gmail address in order to verify it so that a new account can be created for this finance application.Once the Email address gets verified the user can fill in the details and create his account in the application.Details of the users who are using this application are maintained in a database. Amount is entered and it is automatically split into needs, expenses and savings by default. The percentages for all the 3 categories can be edited by the user as per his convenience.The entered amount gets split into the 3 categories as per the percentages mentioned by the user.The user can view each page of the categories and perform transactions. The user can also view his income and spendings in the need and expense categories.The user can add the details of whom he is going to pay for and can pay accordingly. After payment, the transaction gets updated.Autopay lets the user to enter the details of the payer and select the date and time for the transaction to happen. Select the account pay button and add in the details of the payer and perform the transaction.The user must select risk capacity of his investment. Based on the risk capacity a list of stocks will be displayed for the user to invest in. The user should select a stock and make his investment.User must select amount, risk and years of investment and the amount will be directed to the backend team for investing the amount in best stock.The emergency funds must be 6 times the expense category funds else the user can change it based on the requirement. EMI amount is entered, and emergency funds is displayed having target amount and

collected funds.Both EMI and target amount can be changes by the user. The car plan is displayed with   target amount and collected funds. You can also add your own plan with the details to achieve it.
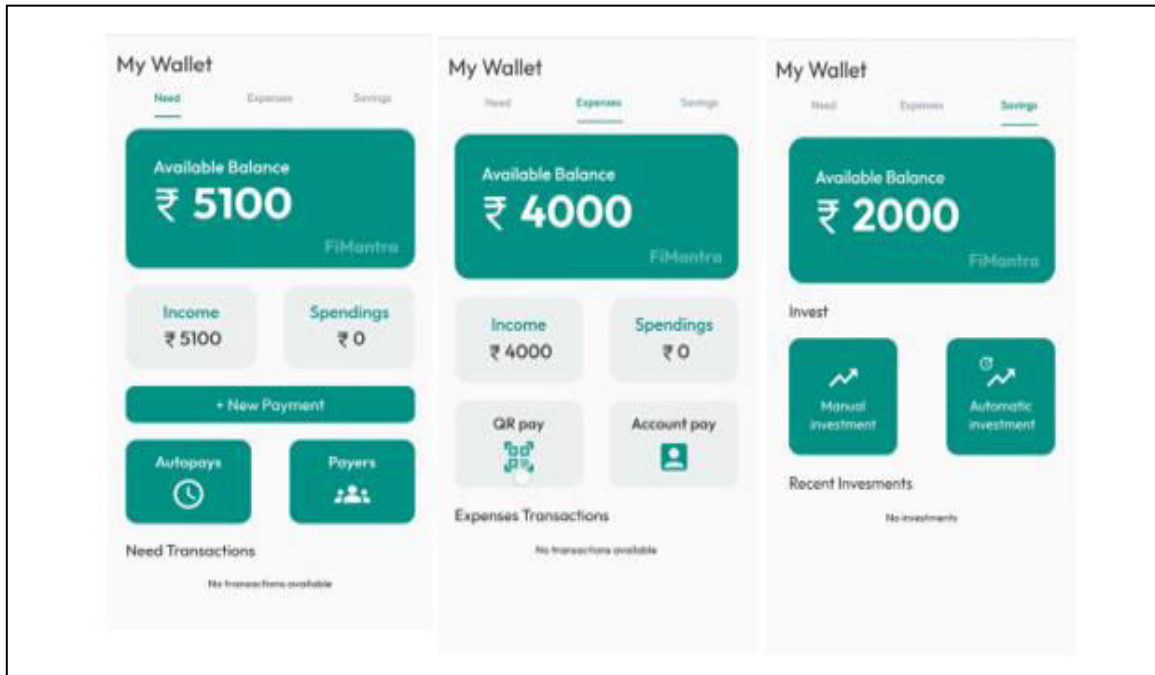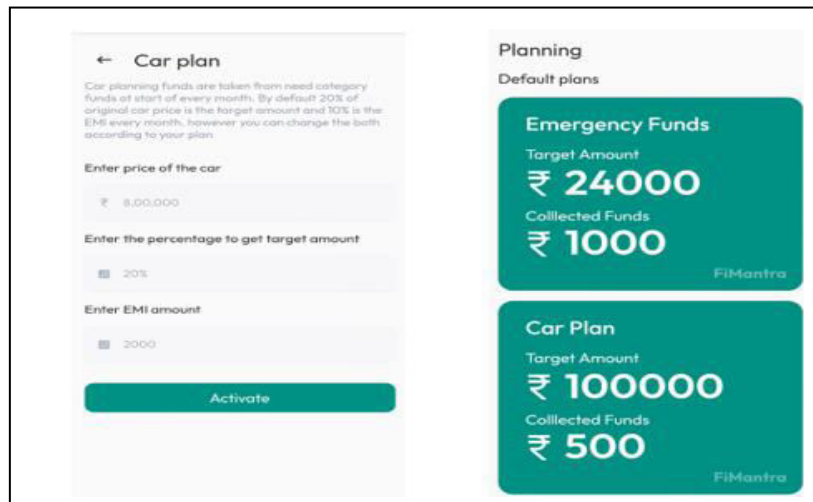

Fig .1. Pages of the categories

Fig .2. Adding car funds plan

VI. CONCLUSION AND FUTURE WORK

In this project, it is aimed to help people in managing their amount effectively. We use our amount forvarious kinds of needs. All the needs are covered in this application, and they are being managed effectively. The areas we use our money are divided into needs, expenses and savings. Default plans are also given in the application which are emergency funds and car funds. If the user wishes to add more plans for investment, then the application also providesthat facility.In both needs and expense category the user can view his income and his spendings so that he can get an idea of how much he should spend and save. User can do his transactions effectively by using autopay feature

where the amount gets paid directly on the selected date and time. Finance management applications could use artificial intelligence and machine learning algorithms to provide personalized recommendations to users based on their financial behavior and goals.Finance management applications could be integrated with voice assistants such as Siri or Google Assistant, allowing users to perform financial transactions and get financial advice hands-free.Finance management applications could incorporate social features, such as the ability to connect with other users and share financial tips and advice.

REFERENCES

1. Kebede, M., & Kuar, J. (2015). Financial literacy and management of personal finance: a review of recent literatures. Research Journal of Finance and Accounting, 6(13), 92- 106.
2. Shaikh, A. A., Alamoudi, H., Alharthi, M., &Glavee-Geo, R. (2022). Advances in mobile financial services: a review of the literature and future research directions. International Journal of Bank Marketing, (ahead-of-print).
3. Ohmori, K., & Kunii, T. L. (2007). Development of an accounting system. ICEIS2007, 437-444.
4. Wiemer, F., & Zimmermann, R. (2014, December). High-speed implementation of bcrypt password search using special-purpose hardware. In 2014 International Conference on ReConFigurable Computing and FPGAs (ReConFig14) (pp. 1-6). IEEE.
5. Esswein, M., Mayer, J. H., Sedneva, D., Pagels, D., & Albers, J. P. (2020). Improving Invoice Allocation in Accounting—An Account Recommender Case Study Applying Machine Learning. In Digital Business Transformation (pp. 137-153). Springer, Cham.
6. Karjaluoto, H., Shaikh, A. A., Saarijärvi, H., &Saraniemi, S. (2019). How perceived value drives the use of mobile financial services apps. International Journal of Information Management, 47, 252-261.
7. Van der Boor, P., Oliveira, P., & Veloso, F. (2014). Users as innovators in developing countries: The global sources of innovation and diffusion in mobile banking services. Research Policy, 43(9), 1594-1607.
8. Horstmann, C.S/ Cornell.G, 8th Edition, "Core Java: Volume 1 – Fundamentals, 8th Edition, Pearson Education
9. Horstmann, C.S/ Cornell.G, 7th Edition, "Core Java: Volume 1 – Fundamentals, 8th Edition, Pearson Education
10. Rob Ericsson and Jason Cline(2007)s, "SQL Server 2005", Charles River Media.
11. Aliyu, S., Hassan, M. K., Mohd Yusof, R., &Naiimi, N. (2017). Islamic banking sustainability: A review of literature and directions for future research. Emerging Markets Finance and Trade, 53(2), 440-470.
11. Alshehhi, A., Nobanee, H., Khare, N. (2018). The Impact of Sustainability Practices on Corporate Financial Performance: Literature Trends and Future Research Potential. Sustainability, 10 (2) pp 494-519

INTERNATIONAL JOURNAL
OF INNOVATIVE RESEARCH

IN COMPUTER & COMMUNICATION ENGINEERING