Development of Budget/Expense Tracker Web Application

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Abstract. With the constant increase of taxes imposed of the government, as well as the price hike of daily needs of the population, the aim of this study is to develop a web-based application that will enable people to keep track of their daily expenses, as well as other variables that are vital in saving up and budgeting such as the user's credits, saved money, and income. The application also includes a feature that will help people by increasing their financial literacy through educational videos related to finance and budgeting. This will enable people to have an idea on how they will spend their money and save up, as well as to promote investing smartly for them to have an extra source of income.

INTRODUCTION

As technology advances, a wide range of information technology (IT)-based apps are created to help people and organizations complete tasks, particularly those that are done on a regular basis. The goal of this web application is to automate keeping track of and keeping tabs on everyday costs. As years go by, the resources that humans need to live such as necessities (food, water, shelter) are getting more expensive. As of now, the price of fuel is skyrocketing every day in addition to the high taxes imposed by the government. Because of this, a lot of Filipino people are suffering with how they will budget their money. Financial literacy is often overlooked especially in a country like the Philippines where it is somewhat of a tradition that people are financially dependent on others (utang). Some Filipinos also do not have an idea about saving up and insurance. According to Standard & Poor's rating services back in 2016, only 25% of Filipinos are knowledgeable about bank savings, insurance, and inflation. This project is aiming to give a platform for people to manage their finance with ease, as well as provide advice on how to budget better. With better financial literacy, people will have a better understanding of the importance of budgeting. This will lead to better choices on spending and saving. Financial literacy will imprint discipline on each one of us and with collective efforts, this can affect the economy of our country for the better.

Back then, daily expenses, periodic costs, and manually determining the financial plan were all tracked in a cost daybook. There are issues with maintaining a budget effectively and easily, as well as avoiding overdraft penalties, unforeseen shortages, and the terrifying prospect of being bankrupt. This project was motivated by the desire to create a simple, portable system that can track and manage personal costs while also warning the user against impulsive and unplanned spending.

According to Rogelj et al. (2019), society depends on budgeting. Budget tracking is keeping track of and evaluating a person's or an organization's earnings and outlays over a specific time frame. Many individuals are seeking for

effective strategies to budget their time and money nowadays since we live in a hurry-up and get-it-done culture. It provides the user with a dashboard with different graphs that shows them different data about their financial status such as their total cash, their expenses, income, savings, and credit. Specific tabs are also made for income and expenses so the user may input and record them in a table to give them an organized view of their income/expense history. The proponents will also add a tab for budgeting tips and tricks that shows videos for the said matter. Lastly, we will integrate a calendar that allows the user to mark the dates of their expenses, as well as their income.

Financial budget management's subject matter has gotten harder and more complicated. If scientific financial budget management techniques are not applied in this context of development, the entire budget management will be in a very disorganized state, which will substantially impair the smooth operation of funds, let alone optimize the allocation of resources to institutions. It is not difficult to understand why the dated broad budget management approach is no longer effective. The first-pass management model must be implemented before the efficiency and effectiveness of financial accounting in colleges and universities can be improved (Wang et al. 2020).

Most of the time, budget management is done mentally and never on paper, which makes budget tracking quite challenging. This is most likely because a lot of individuals lack the knowledge or tools necessary to perform budget tracking and analysis themselves. Budget tracking is crucial since it enables us to monitor our outgoing costs in relation to our incoming cash flow. Additionally, it enables us to budget and prepares for the next initiatives. By computing monthly/annual earnings and costs as well as variances, we can assess and compare revenue and expenses over time, which aids us in making critical decisions. The data given during Budget Tracking can potentially be used to anticipate bankruptcy and future budgets (Bekaroo et al., 2007).

The proponents aid its user to develop better financial decision and habits by showing presentable data of their income and expenses, as well as their savings and credits. The application also has a section of video guides that focuses on financial literacy and budgeting that the user can watch to give them more knowledge in handling their money. Also, the proponents want to help develop users' financial responsibility and productivity by having a calendar/planner in which they can input due dates for different expenses as well as paydays.

METHODS OF RESEARCH

For this study, the proponents of research used developmental research. The goal of development research is to produce new materials, products, or devices, install new systems, processes, and services, and significantly improve those that have already been developed or installed. Development research is a methodical process that builds on prior knowledge acquired through research and/or practical experience. For the Software Development Life Cycle (SDLC) of the web application, the research will use the waterfall model

The proponents will use the Waterfall Model as our software development process. As it is a linear and straightforward strategy in developing a project and with only 3 group members, we have decided to work together in a specific part of the project before advancing towards the next one, thus having the waterfall model. Our team will use React.js as the framework in building the front-end of the application, while Firebase is used as back-end or database. The proponents will undertake together with subject professor to further check the application and implementation of the project. The professor is assigned to check and monitor the project's status, as well as to guide the students in developing and implementing the project.
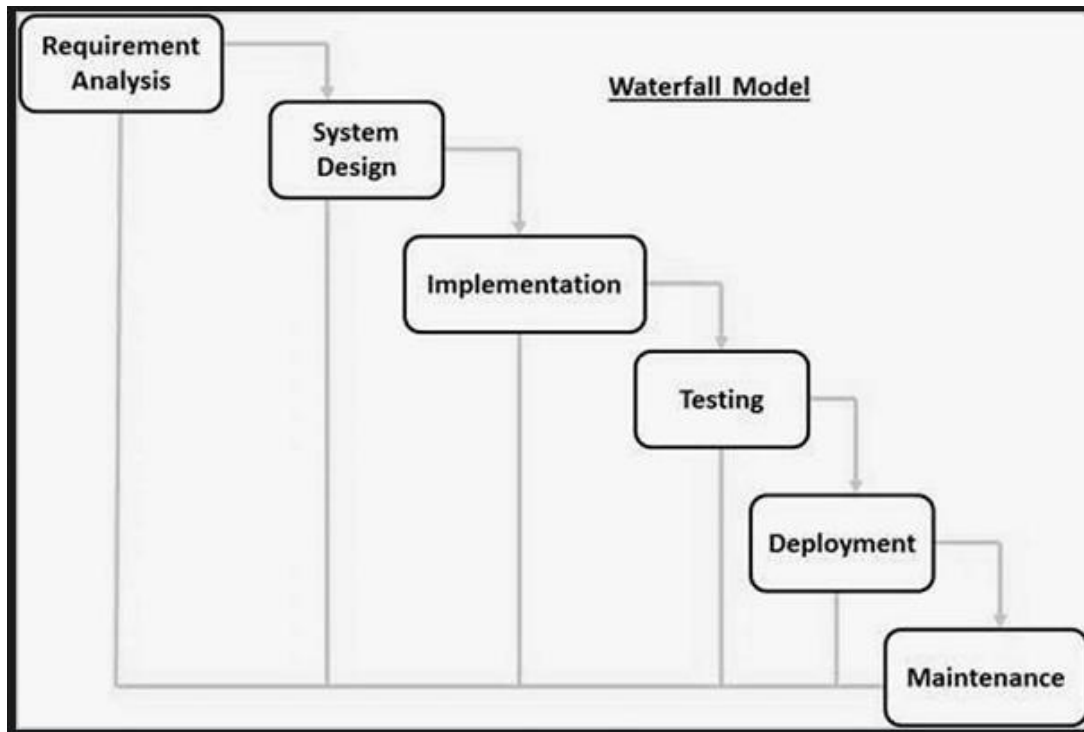
FIGURE 1. *Waterfall Model of the study.*

Requirement Analysis - During this stage, all potential system needs are gathered and outlined in a requirement specification document.

System Design - Required specifications from the previous phase are examined, and the system design is created.

Implementation - The system is initially built as discrete programs known as units, which are then combined in the following phase, using inputs from the system design. Unit testing is the process of developing and evaluating each unit for functionality.

Testing - The entire system is merged. It is then tested for errors and failures after integration.

Deployment - The product is made available to customers or introduced to the market.

Maintenance - Fixing potential issues that customers may experience once the application is deployed.

DATA GATHERING

To make sure the study would be successful, the researcher took a variety of measures to acquire data. The procedures were as follows:

Document analysis. This method of gathering data is intended to help the proponents understand more about subjects related to the research project, notably web application development. Since the proponents lack the requisite knowledge on the issue, document analysis is carried out before to developing and implementing the web application to guarantee that the software development method is appropriate. This technique for gathering data will act as a guide and create the minimum standard that must be satisfied during development.

Questionnaire. This is the main method used to gather the information needed to assess the project's quality and ensure the research's success. The substance of the questionnaire focuses on the respondents' assessments of the software's usability, functionality, and other attributes. The pre-made surveys will be distributed following the software's final deployment.

FUNCTIONAL BLOCK DIAGRAM

The figure below shows the functional block diagram of the application which explains the process and algorithm of the application. It shows the different inputs that the user will make such as their Income, Expense, Savings, and Credit/Loan. This will then be outputted to the respective tables of each page. As the values get recorded in the table, the application will then compute for the data feature of the page. The data feature differs in every page (Average income/savings per month, expense for the day, and current loan and credit). Together with this, the data inputted by the user will also be processed by the program to give them more valuable information in the dashboard page of the app.
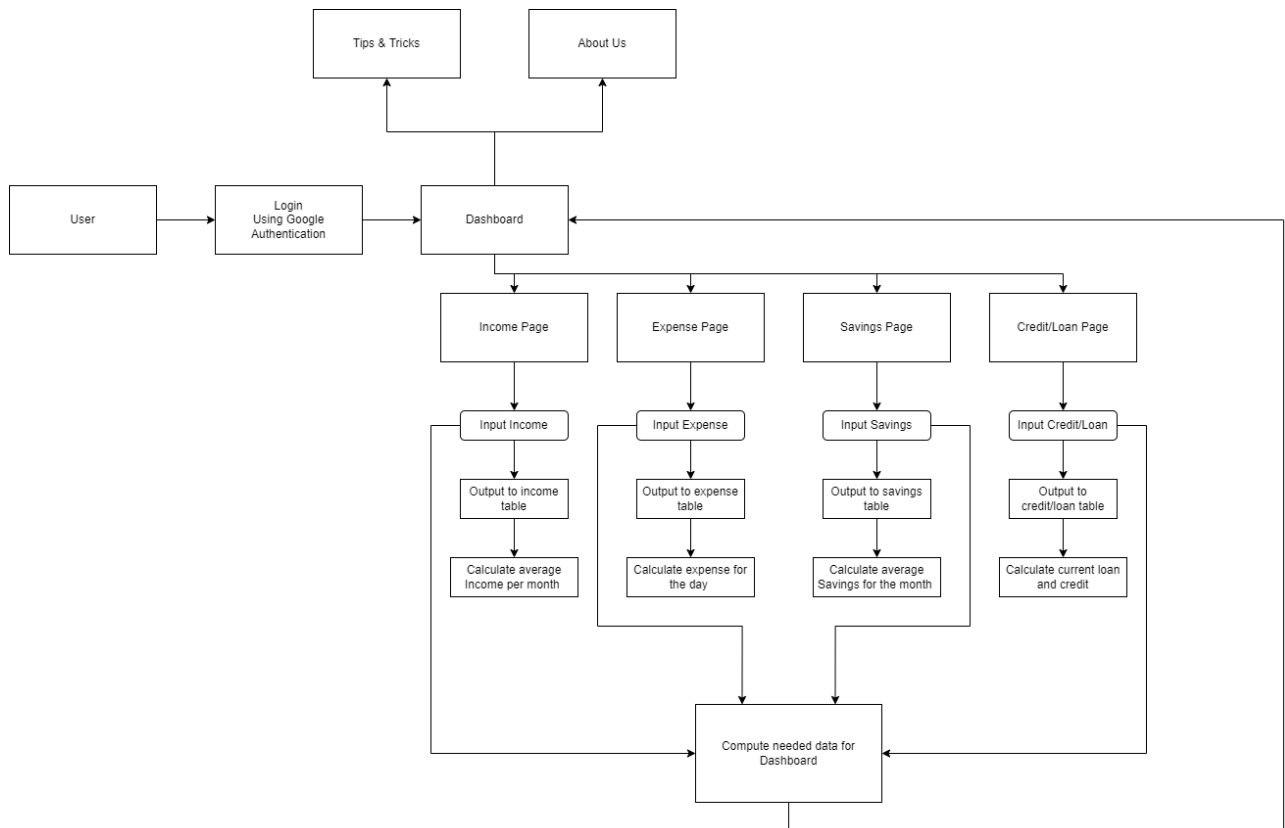

FIGURE 2. *Functional Block Diagram of Development of Budget/Expense Tracker Web Application*

SOFTWARE APPLICATION

The web application is created using Visual Studio Code and is written in JavaScript using the React.js library, and database will be used is Google Firebase. The figures below show the displays for Budget Tracking web application. The figures below illustrate the Login page, Dashboard page, Credit/Load page, Expense page, Income page, Savings page, Tips and tricks page and About us page.
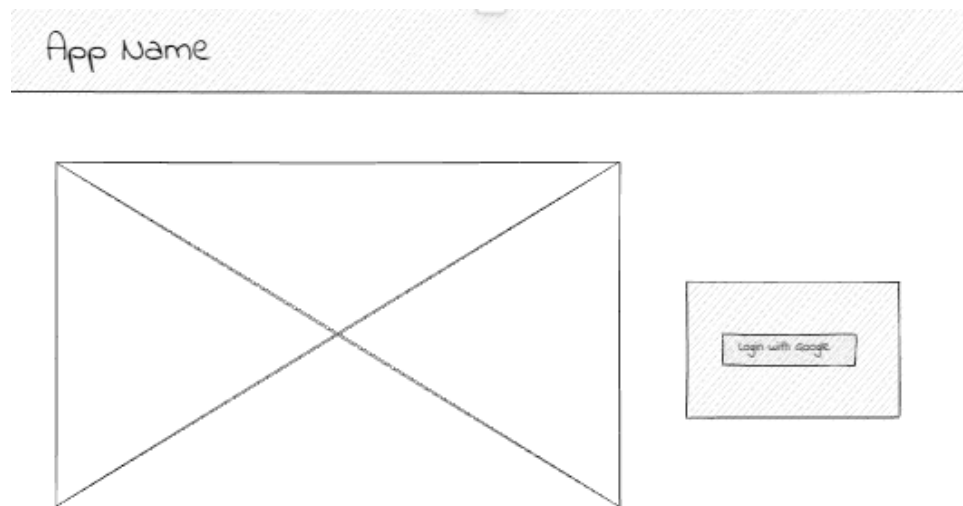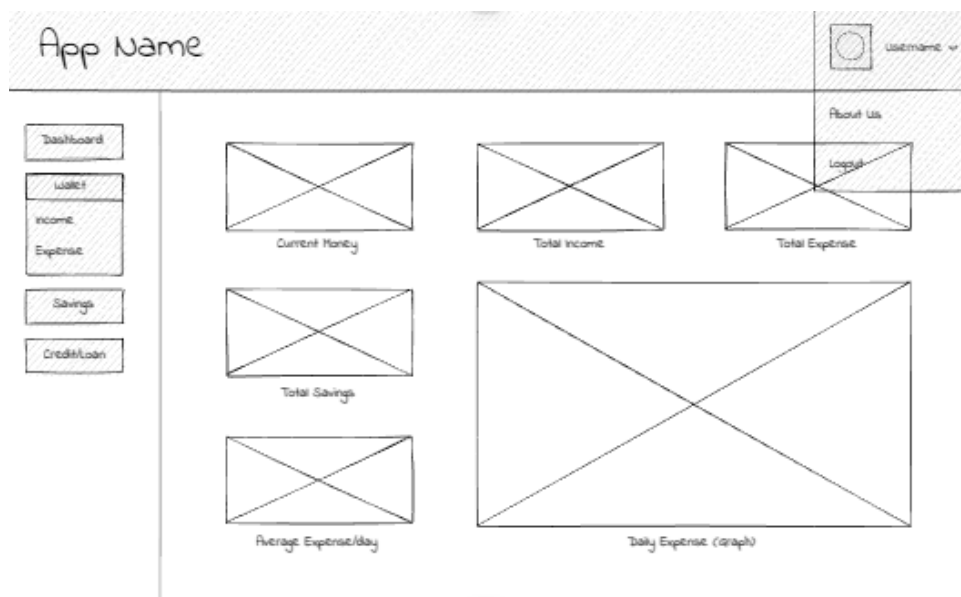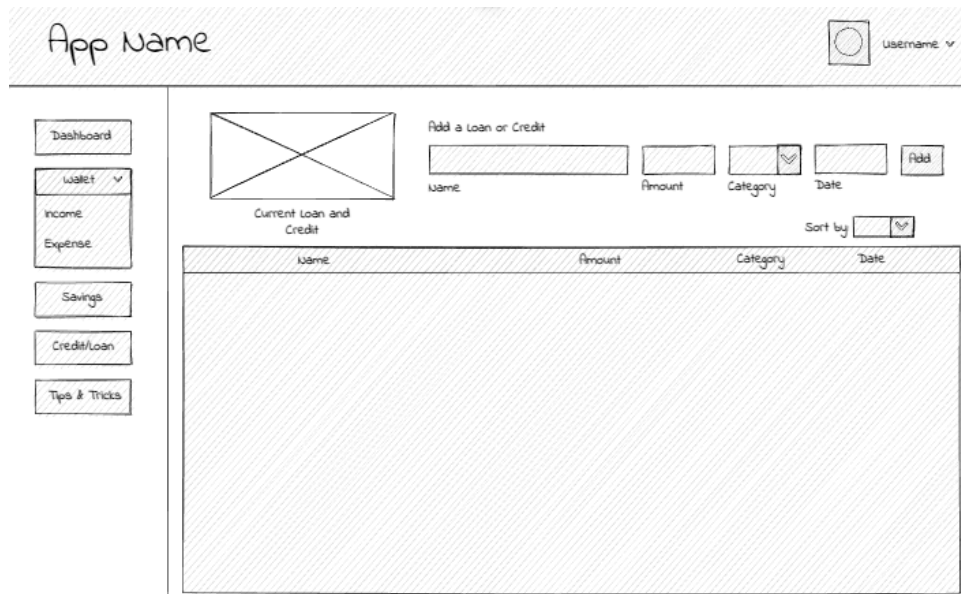
App Name

FIGURE 3. *Login page*

App Name

FIGURE 4. *Dashboard page*

App Name

Username ∨

Dashboard

Wallet ∨

Income

Expense

Savings

Credit/Loan

Tips & Tricks

Add a Loan or Credit

Name   Amount   Category   Date   Add

Current Loan and
Credit

Sort by ∨

Name	Amount	Category	Date

FIGURE 5. *Credit/Loan page*

App Name

Username ∨

Dashboard

Wallet

Income

Expense

Savings

Credit/Loan

Tips & Tricks

Add Expense

Name   Amount   Category   Date   Add

Expense for the day

Sort by ∨

Name	Amount	Category	Date
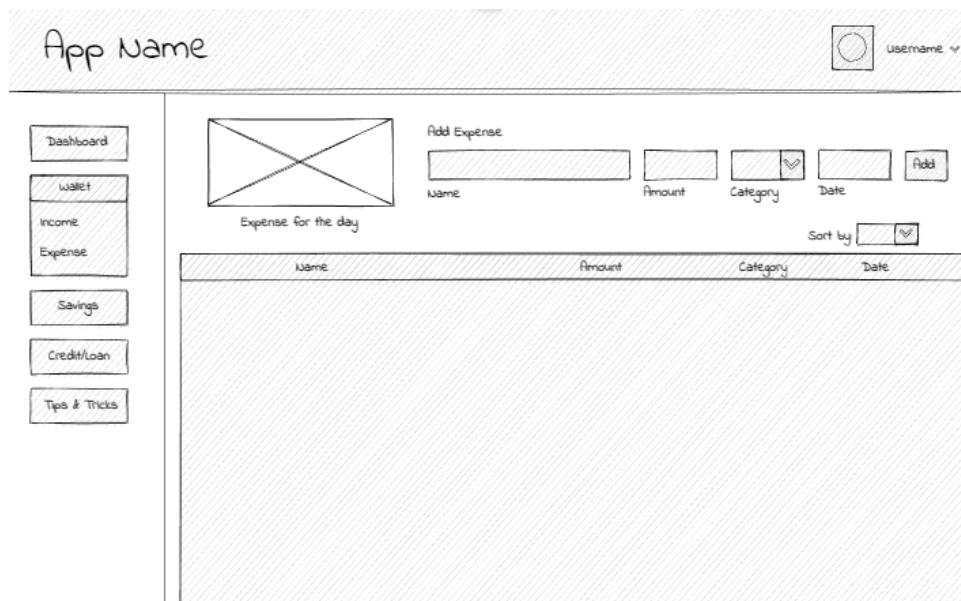
FIGURE 6. *Expense page*

username ∨

Dashboard

Wallet

Income

Expense

Savings

Credit/Loan

Tips & Tricks

Add Income

Name

Amount

Category

Date

Add

Average income per month

Sort by

Name | Amount | Category | Date

FIGURE 7. *Income page*

username ∨

Dashboard

Wallet ∨

Income

Expense

Savings

Credit/Loan

Tips & Tricks

Add Savings

Name

Amount

Category

Date

Add

Average savings for the month

Sort by

Name | Amount | Category | Date
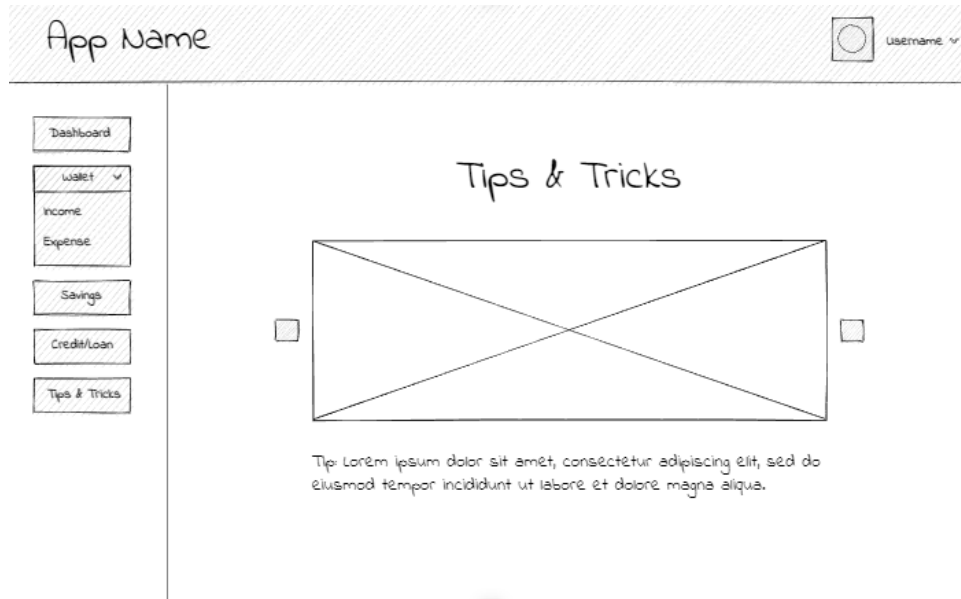
FIGURE 8. *Savings page*

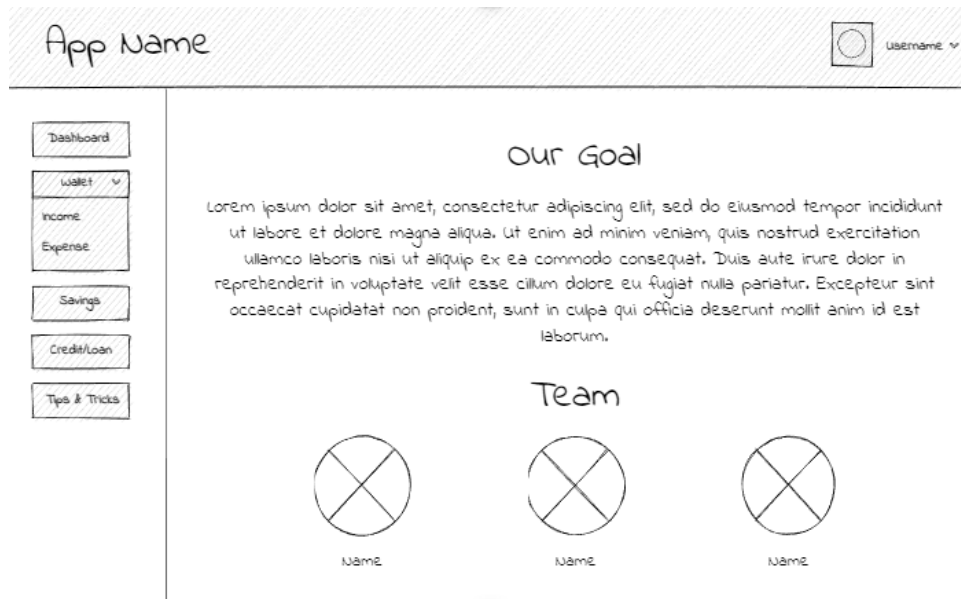**FIGURE 9.** *Tips & tricks page*

FIGURE 9. *About Us page*

CONCLUSION

To summarize the entire study, it can be said that the program was motivated by the need to provide an intuitive online tool for managing and tracking personal expenses while forewarning the user against unreasonable and unforeseen spending. The goal of the application's developers is to illustrate the advantages of economic technology

integration and how it affects society by recording the user's financial activity. Developmental and waterfall design methods, including flowcharts, use case diagrams, and sequence diagrams, were used in the creation of the application system. The Expense Tracker project will assist users in keeping a daily financial journal. In comparison to current income and spending trackers, the project they developed is more effective. Because of how user-friendly the program is, laborious calculations for salary and costs can be done away with altogether.

ACKNOWLEDGMENTS

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