TRIBHUVAN UNIVERSITY
INSTITUTE OF SCIENCE AND TECHNOLOGY
CENTRAL CAMPUS OF TECHNOLOGY, DHARAN, SUNSARI, NEPAL

A Project Proposal On

MERO KHUTRUKE - A WEB-BASED PERSONAL FINANCE MANAGER

Submitted To:
DEPARTMENT OF IT
CENTRAL CAMPUS OF TECHNOLOGY, DHARAN, SUNSARI, NEPAL

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1. Introduction

In today's world of digitization and exponential advancement in the field of technology, the field of personal finance management has improved remarkably [1]. Personal finance management refers to the financial choice and tasks of an individual, which includes budgeting, saving goals, investments, loans, and many more. Effective personal finance management plays a pivotal role in the individual's quality of life. Many individuals face significant issues tracking their expenses and budget due to dependence on manual calculations. These process are more laborious, open to error, and making informed decision becomes burdensome [2].

To tackle these issues, we will develop a web-based personal finance manager named Mero Khutruke, which will help user to minimize the physical calculations for their daily expenditure, track their expenses. The user can use the pre-defined categories that the web application offers and also can create their own set of categories. On the basis of weekly, monthly, and annual, the expenses and income will be displayed in the form of charts. There will be a budget section where the users will be able to create their budget limit for the categories each month depending on their budget.

2. Problem Statement

Present financial transactions include many sources of income, expenses, billing methods which results in difficulty in maintaining the individual's economic well-being. Existing systems for financial management are often complicated, has some kind of subscription payment for features, poor user-friendly environment, obstructing the users to cope up with personal finances. People might forget to record their expenses, and might even lose interest in using the application resulting in inaccurate and unreliable data which eventually affects in making informed financial decisions. People also need to be educated on the advantages of recording their expenses and the proper way to use an expense tracker to enhance their financial well-being.

3. Objectives

The general objective of this project is to help the user develop a budget plan.
The specific objectives of the project include:

1. To track the user's daily expenditure.
2. To promote creating a saving goal for an individual.
3. To provide a user friendly environment for the end users to manage their personal finances.
4. To provide visual representation on the incomes and expenses.

4. Methodology

4.1. Requirement identification

4.1.1. Study of Existing System

1. EveryDollar is a personal budget app. It helps in creating custom budgets, tracking expenses, planning your spending, setting and reaching your goals, and keeping up with the finances. Every single dollar. EveryDollar is a budget-planning app, based on Dave Ramsey's principles of a zero-based budget and paying off debt using the debt snowball method, that allows users to easily track their budget and spending on a monthly basis. The app is designed for adults and gives them the ability to easily see where they spend their money each month [3].

2. Know Your Budget is an everyday expense tracker and control application to track costs effortlessly and efficiently. Users will be able to maintain their information systematically. It can be used by any individual to track their income and expenditure from day to yearly basis. The site provides report in the form of pie-chart. It has a feature to aid in adding information about where the money received from, what it costs, from whom and the purpose for the payment [2].

3. Money Lover is a simple money tracker. It records daily transactions and put them in categories. It provides budgeting feature to control the expenses. It also provides report to give a clear view on the individual's spending patterns. It has multiple features including multiple currency support, notifications, can take picture of receipts to auto process and organize them [4].

4. Controle Finance is a web-based personal finance manager. It tracks the user's income, expenses, investments and many more. It can manage accounts in multiple currencies. Users can import their expense tracking spreadsheet into the application. The app provides a feature to generate reports to track the expenses over the time period that the users prefer [5].

4.1.2. Requirement Analysis

We will develop a front-end and back-end data-driven web-based personal finance management solution. Laravel framework will be used in the back-end consisting of all the logical

components, MYSQL for the database, Livewire, Alpine.js, and Tailwind CSS in the front-end. API will be developed and implemented connecting the front-end and back-end data. These are the fundamental technologies that will be utilized in the development however flexibility will be applied as needed.

4.2. Feasibility Study

The feasibility study conducted has came to a conclusion that the project is feasible considering technical, operational, economical, and time factors. The technology use are mostly open sourced, which makes the designing, implementation and testing phases less costly.

4.2.1. Technical

This projects includes both working on back-end and front-end for the project purpose. We will use TALL (Tailwind CSS, Alpine.Js, Laravel, Livewire) stack as our fundamental technology to develop the web application.As we all are familiar with these tools and methods. So, it is technically feasible.

4.2.2. Operational

As we will built a web application that is user friendly and runs with a minimum requirement of browser,internet and little knowledge of computer system can operate this system. So, it is operationally feasible.

4.2.3. Economic

The economic feasibility of the proposed system is discussed below:-

Table 4.1: **Expected Cost of Mero Khutruke**

SN.	Title	Cost
1	Internet Cost	Rs. 2000
2	Software Cost	Rs. 2000
3	Training Cost	Rs. 3000
4	Documentation Cost	Rs. 2000
5	Miscellaneous Cost	Rs. 3000
	Total	Rs. 120000

As we will be doing our projects for a general educational purpose and don't expect anything in return and have presented a table above with resources and its cost in a minimal amount. Most of the technology used are free open-source software. So, it is economically feasible.

4.2.4. Schedule

Here,we have prepared a Gantt chart of our projects purpose showing how much actual time we took to work on our projects.It will take us approximately 12 weeks to build the project. We have listed all the stages and phases that we will go through while building our projects to make it reliable and efficient.

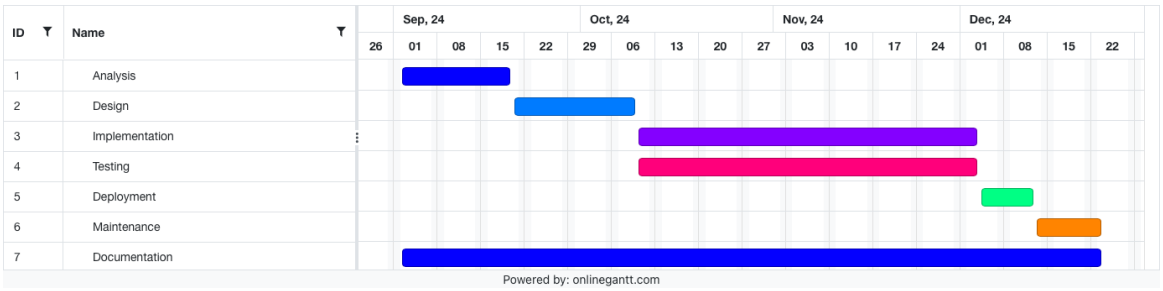

Figure 4.1: **Schedule of the Project**

Here we have divided our projects in various stages where we will be going through various phases performing various method. The development duration of the project duration of the project consisted of allocating two weeks for both the requirement analysis and designing a wireframe. It will take another six weeks to implement the code and test the system simultaneously. The deployment process will be finished in a week, and a week will be required for maintenance. We will start working on the documentation at the outset.

4.3. High-Level Design of System

This section describes our projects high level design of the system. All the diagrams were drawn using online tool called diagram.net (`https://app.diagrams.net/`).

4.3.1. Methodology of the proposed system

We will use the simple software development life cycle model called Waterfall Model. It is very straightforward model yet idealistic. The Waterfall model follow a sequential, linear

process where each phase must be completed before moving to the next one. Moreover, the structured approach follows the similar concept. As our project has well-defined and stable requirements and objectives, waterfall model serves as satisfactory approach to building our system. We will also be using the structured approach by dividing the program into reusable functions. The program is developed in Top-down approach where high-level tasks are broken down into smaller sub-tasks [6].

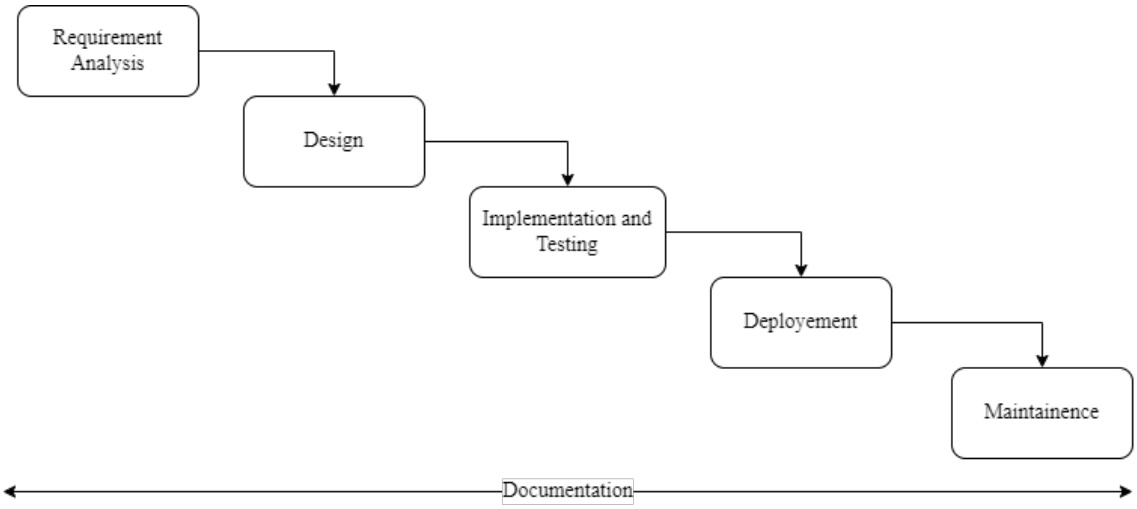

Figure 4.2: **Waterfall Model**

4.3.2. System Flowchart

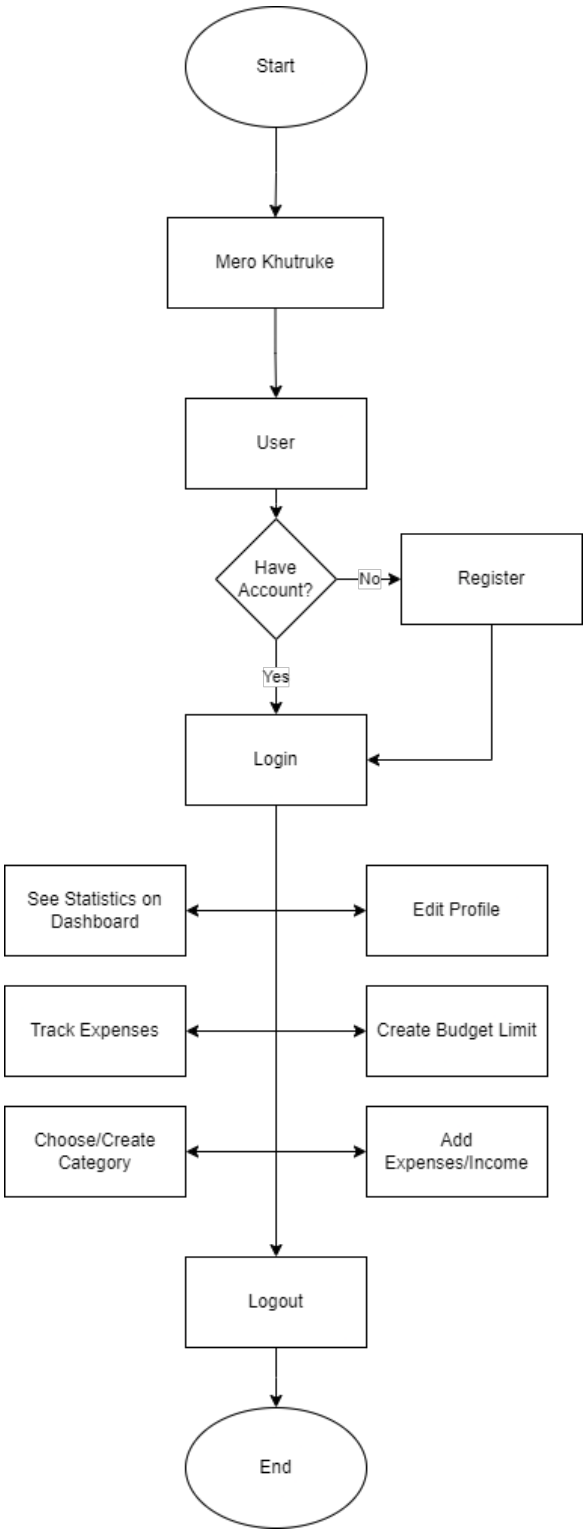

Figure 4.3: **System Flowchart of Mero Khutruke**

4.3.3. System UML Diagram

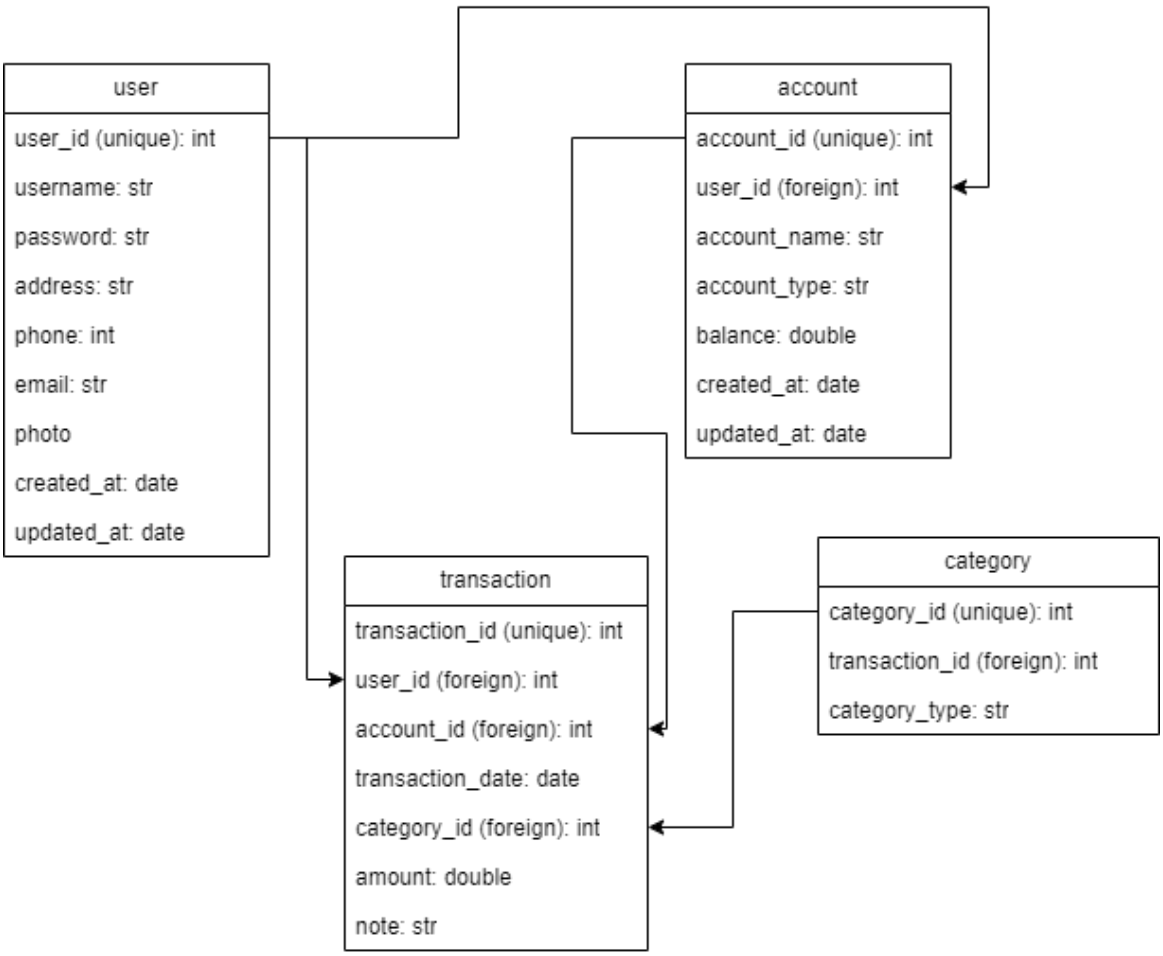

Figure 4.4: **System UML Diagram of Mero Khutruke**

4.3.4. System Use Case Diagram

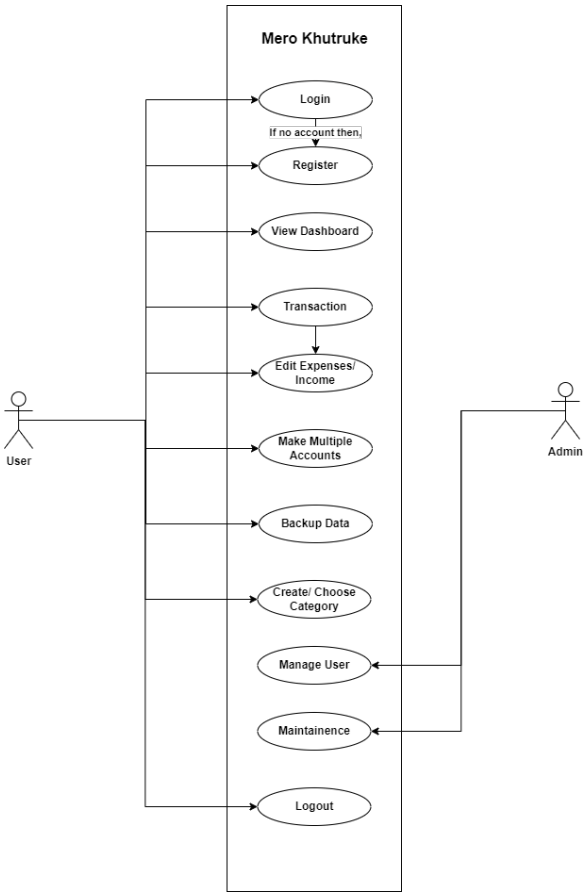

Figure 4.5: **System Use Case Diagram of Mero Khutruke**

4.3.5. Description of Algorithms

1. Searching is the fundamental process of locating a specific element or item within a collection of data. The primary objective of searching is to determine whether the desired element exists within the data, and if so, to identify its precise location or retrieve it.

2. A Sorting Algorithm is used to rearrange a given array or list of elements according to a comparison operator on the elements.The comparison operator is used to decide the new order of elements in the respective data structure.

3. Laravel includes built-in authentication and session services. These feature provide cookie-based authentication for requests those are commenced from web browsers [7]. Cookie-based authentication relies on an authentication cookie, which is transmitted between the client and the server. When a user successfully logs into an application, the server generates a cryptographically-signed token that's stored as a cookie

on the client-side browser. This cookie then serves as a key to maintain the user session on subsequent requests, identifying the user without requiring re-authentication [8].

5. Expected Output

After the completion of the project, we expect the following output which minimizes the general issues faced by the users. The users will be able to see detailed information about their daily expenditures. Users will be able to lead their budget in a balanced way. There will be enhanced user convenience due to the user-friendly interface and comfort using the application using smartphone or computer.

References

[1] S. Verma, S. S. Kheda, and S. Kuwale, "Research paper for personal finance tracker," *International Research Journal of Modernization in Engineering Technology and Science*, vol. 06, 5 2024.

[2] P. Bhatt, S. C. Nutheti, G. Mamidipaka, U. K. Kondapally, and H. Lokineni, "Expense tracker: A smart approach to track daily expense," *Tuijin Jishu/Journal of Propulsion Technology*, vol. 45, 2024.

[3] RamseySolution, "Everydollar," 2024. [Online]. Available: https://www.ramseysolutions.com/ramseyplus/everydollar

[4] Finsify, "Money lover," 2024. [Online]. Available: https://moneylover.me/

[5] ControleFinance, "controle.finance," 2024. [Online]. Available: https://controle.finance/

[6] B. Nancholas, "What is the difference between object-oriented and structured programming?" *North Wales Management School – Wrexham University*, 3 2024. [Online]. Available: https://online.wrexham.ac.uk/what-is-the-difference-between-object-oriented-and-structured-programming/

[7] Laravel, "Authentication," 2024. [Online]. Available: https://laravel.com/docs/11.x/authentication

[8] SystemDesignSchool, "Understanding auth cookies," 2023. [Online]. Available: https://systemdesignschool.io/blog/auth-cookies

[9] M. R. Vigil, "Budgeting, the importance of keeping track of your money," 2020. [Online]. Available: https://www.uwyo.edu/uwe/programs/money/_files/_docs/2020-vigil_budgeting-.pdf