

Expense Tracking System Requirements

1. Introduction

1.1 Purpose

The purpose of this document is to outline the requirements for the development of an Expense Tracking System. The system aims to provide users with a comprehensive solution for budget management, expense tracking, and financial analysis.

1.2 Scope

The Expense Tracking System will cover the following key features:

- Monthly and Yearly Budget Management
- Expense Entry and Categorization
- ML Regression for Expense Prediction
- Daily Notifications
- Data Visualization with Charts and Graphs

2. Functional Requirements

2.1 User Management (Optional)

1. **User Registration:** Users can create accounts with unique usernames.
2. **User Authentication:** Secure login functionality.

2.2 Budget Management

3. **Monthly and Yearly Budgets:** Users can set and modify budget limits for each month and year.
4. **Budget Tracking:** The system should track and display the remaining budget amount for the current month and year.

2.3 Expense Entry

5. **Expense Categories:** Define and manage different expense categories.
6. **Expense Entry Form:** Users can add, edit, and delete expense entries with details like date, amount, category, and notes.

2.4 Expense Management

7. **Expense Editing:** Users can edit or delete existing expense entries.
8. **Expense Categorization:** Implement automatic and manual categorization of expenses.

2.5 Notification System

- 9. **Budget Exceedance Alert:** Notify when users are about to exceed their monthly and yearly budget.
- 10. **Spending Rate Alert:** Notifications based on ML regression analysis to warn users of potential future budget exceedance.

2.6 Expense Analysis

- 11. **ARIMA for Budget Exceedance Prediction:** Utilize ARIMA (AutoRegressive Integrated Moving Average) for predicting potential budget exceedance.

2.7 Data Visualization

- 13. **Expense Statistics:** Visual representations of spending habits through charts (pie charts, bar graphs, line charts), for monthly and yearly spends.

3. Non-Functional Requirements

3.1 Performance

- 15. **Notifications:** Ensure timely delivery of notifications.
- 16. **Machine Learning Model Performance:** Monitor and optimize the performance of the ML regression model.

3.2 Security

- 17. **Data Privacy:** Implement measures to ensure the privacy and security of user financial data.
- 18. **Notification Security:** Ensure that notification messages are securely delivered and not accessible to unauthorized users.

4. Technical Requirements

4.1 Technology Stack

- 19. **Frontend:** HTML, Bootstrap, CSS, JavaScript, jQuery
- 20. **Backend:** Node.js with Express
- 21. **Database:** MongoDB
- 22. **Machine Learning Framework:** ARIMA (AutoRegressive Integrated Moving Average) for expense prediction
- 23. **Notification System:** Daily email notifications using node-cron library