SOFTWARE REQUIREMENTS SPECIFICATION

**For**

**EXPENSE TRACKER**

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# Introduction

## Purpose

The main objective of this document is to illustrate the requirements of the project Expense Tracker. An expense tracker in a project serves to monitor and record financial transactions related to the project. It helps in budget management, cost control, and financial accountability. By tracking expenses, project managers can make informed decisions, identify potential cost overruns, and ensure that the project stays within budget constraints. Additionally, it provides a transparent record for auditing and financial reporting purposes.

## Scope of Development Project

## The development scope of the Expense Tracker project is expansive, aiming to deliver a comprehensive

## financial management system. Users will experience secure registration and authentication processes,

## ensuring the protection of sensitive financial data. The user interface will feature an intuitive dashboard,

## facilitating easy navigation and providing a snapshot of financial summaries. Transaction management capabilities will empower users to input, edit, and categorize income and expenses, fostering efficient financial tracking. Budget-setting functionality, coupled with real-time tracking and alerts, will enable users to proactively manage their spending.

## Robust reporting and analysis features will offer users insights through customizable

## reports and visual representations like charts and graphs. The system will integrate with bank accounts,

## supporting third-party services, and ensuring data security through encryption protocols. Mobile

## responsiveness will extend accessibility across various devices. Collaborative features, including shared access and permission controls, enhance the system's versatility. Regular data backups, usability testing, and adherence to accessibility standards further contribute to a reliable and user-friendly application. The scalable design anticipates future enhancements, such as AI-driven insights or additional integrations, making the Expense Tracker project a comprehensive solution for effective financial management.

**Acronyms and Abbreviations:**

* + **ET:** Expense Tracker
  + **FTM**: Financial Transaction Manager
  + **EBM**: Expense and Budget Management
  + **CATS**: Categorized Accounting and Tracking System
  + **EMIS**: Expense Management and Insight System

## References

* + - Books

 Software Requirements and Specifications: A Lexicon of Practice, Principles and Prejudices (ACM Press) by Michael Jackson

Software Requirements (Microsoft) Second EditionBy Karl E. Wiegers

Software Engineering: A Practitioner’s Approach Fifth Edition By Roger S. Pressman

* + - Websites

[**http://www.slideshare.net/**](http://www.slideshare.net/)

[**http://ebookily.net/doc/srs-library-management-system**](http://ebookily.net/doc/srs-library-management-system)

# Overall Descriptions

## Product Perspective

Use Case Diagram of Library Management System

*searches*

1

1 *requests*

1

1

1..\*

\*

search\_book



1..\*

check\_limit

check\_availability

User 1

issue\_book

*request\_renew*

<<include>>

*monitors\_request*

1

*monitors\_renew* 1

1

*performs*

*give\_book*

<<include>>

0..\*

1..\*

renew\_book

verify\_member

<<include>>

*take\_book*

1

1 Librarian

Student

0..\*

1..\*

*adds\_new\_book*

*perform\_transaction\_updation*

Staff

\*

\*

return\_book

View\_logs

<<extend>>

add\_book

\*

calculate\_fine

update\_record

This is a broad level diagram of the project showing a basic overview. The users can be either staff or student.. This System will provide a search functionality to facilitate the search of resources. This search will be based on various categories viz. book name or the ISBN. Further the library staff personnel can add/update the resources and the resource users from the

system.The users of the system can request issue/renew/return of books for which they would have to follow certain criteria.

## Product Function

Entity Relationship Diagram of Library Management System



The Online Library System provides online real time information about the books available in the Library and the user information. The main purpose of this project is to reduce the manual work. This software is capable of managing Book Issues, Returns, Calculating/Managing Fine, Generating various Reports for Record-Keeping according to end user requirements. The Librarian will act as the administrator to control members and manage books. The member’s status of issue/return is maintained in the library database. The member’s details can be fetched by the librarian from the database as and when required. The valid members are also allowed to view their account information.

## User Classes and Characteristic:

For an expense tracker system, we can define two user classes: "User" and "Administrator/Controller." The "User" class represents individuals who use the expense tracker to manage their personal finances, while the "Administrator/Controller" class represents individuals who have administrative privileges and control over the system.

### **User Class:**

* Users can view a summary of their expenses, including categories and total spending.
* Users can categorize their expenses into different predefined or custom categories (e.g., groceries, utilities,

entertainment).

* Users can manually input or import financial transactions to update their expense records.
* Users can set budget limits for various expense categories to track and manage their spending.
* The system provides real-time updates on financial transactions and expense summaries.
* Users can generate reports and view visualizations to analyze spending patterns over time.
* The expense tracker is accessible through mobile devices, enabling users to track expenses on the go.
* The system ensures the security of user data, employing encryption and secure login methods.

### **Administrator/Controller Class:**

#### 

* The administrator has access to all the features available to regular users for managing personal finances.
* The administrator can manage user accounts, including adding, modifying, or deactivating user accounts.
* The administrator can add, edit, or remove expense categories available for users.
* The administrator can export financial data, useful for auditing, reporting, or analysis purposes.
* The administrator has the ability to configure system settings and preferences.
* The administrator can set up alerts and notifications for users or system events.
* The administrator can manage integrations with financial institutions and external services.

## Operating Environment

The operating environment of an expense tracker refers to the conditions and factors that surround

and affect the functioning of the expense tracking system. Here are some key elements of the

operating environment for an expense tracker:

**Device and Platform Compatibility:**

* + **Mobile Devices:** Many expense trackers are designed to work on smartphones and tablets. They may have dedicated mobile apps for iOS and Android platforms.
  + **Web Browsers:** Expense trackers may also have web-based interfaces that can be accessed through popular browsers like Chrome, Firefox, Safari, etc.

## Assumptions and Dependencies

**Assumptions:**

* + The system should be user-friendly so that it is easy to use for the users.
  + Users will input accurate and complete information about their expenses.
  + Automatic syncing with bank accounts and credit cards is assumed to be reliable and error-free.
  + Users have consistent internet access for real-time syncing and updates.
  + Security features implemented within the expense tracker are effective in protecting user data.
  + The security of financial information depends on the strength of encryption, authentication

methods, and adherence to security best practices.

* + Third-party integrations and APIs used for data synchronization are reliable and available.

**Dependencies:**

* The expense tracker's compatibility with different operating systems and platforms is

crucial for user accessibility.

* If the expense tracker relies on cloud storage, the availability and performance of the

chosen cloud service (e.g., AWS, Azure, Google Cloud) are critical.

* Integration with banking APIs, accounting software, or other third-party services requires

those services to be available and functioning correctly.

* The expense tracker's functionality may depend on specific development frameworks and

libraries, and any changes to these may impact the system.

* The choice of a database system (e.g., MySQL, MongoDB) affects data storage, retrieval, and

overall system performance.

## Requirement

This software package is developed using java as front end which is supported by sun micro system. Microsoft SQL Server as the back end to store the database.

* Operating System: Windows NT, windows 98, Windows XP
* Language: Java Runtime Environment, Net beans

7.0.1 (front end)

* Database: MS SQL Server (back end)

**Hardware Configuration:-** Processor: Pentium(R)Dual-core CPU Hard Disk: 40GB

RAM: 256 MB or more

## Data Requirement

The data requirements for an expense tracker are fundamental to its functionality. The type of data that the expense tracker needs to handle can vary based on the features and complexity of the application. Here are the key data requirements for an expense tracker

* + **Description:** A brief description or name for the expense.
  + **Amount:** The monetary value of the expense.
  + **Date:** The date when the expense occurred or the transaction date.
  + **Category Name:** Classification of expenses into categories (e.g., groceries, utilities, entertainment).
  + **Subcategories (optional):** Further classification within a category for more detailed tracking.
  + **Method Name:** The payment method used for the expense (e.g., cash, credit card, debit card).
  + **Account Information (optional):** Details of the account or card used.

# External Interface Requirement

* **Graphical User Interface (GUI):**

The Expense Tracker software will offer an intuitive graphical interface for both users and

administrators, facilitating efficient financial management. Key GUI requirements include:

* **Quick Reports:**

Users can generate quick reports, such as income vs. expenditure within a specific timeframe,

aiding in financial analysis.

* **Search and Filtering:**

The system provides robust search capabilities based on various criteria, enabling users to quickly

locate specific transactions or financial information.

* **Customizable Interface:**

Administrators have the flexibility to customize the user interface, tailoring it to meet specific

organizational preferences or user needs.

* **Standardized Design:**

All modules within the Expense Tracker adhere to a standardized template, ensuring consistency

and ease of navigation for users.

* **User Management Integration:**

The user interface seamlessly integrates with the user management module, with a dedicated

section for login/logout functionality.

* **Login Interface:**

The login interface ensures secure user access and registration processes:

* **User Registration:**

New users can register by entering required details to create an account for Expense Tracker.

# System Features

The users of the system should be provided the surety that their account is secure. This is possible by providing:-

* The Expense Tracker project features robust user authentication, ensuring secure access via unique member IDs.
* Proper accountability is maintained by restricting member access to their own accounts, with administrators overseeing all accounts.
* The system incorporates fine management, assigning fines for overdue returns.
* To uphold privacy, users can only view and manage their own financial data.
* An audit trail maintains a detailed transaction history, and role-based access control grants administrators elevated privileges for system management.
* The system prioritizes security with data encryption and supports users through a notification system.

# Other Non-functional Requirements

## Performance Requirement

## The Expense Tracker system is designed to deliver a responsive user experience. Users can expect the system to respond promptly to their actions, with a requirement that the response time should be within 2 seconds to maintain efficiency and user satisfaction.

## Response Time:

## The system should respond to user actions within 2 seconds to ensure a seamless user experience.

## Concurrency:

## Support a minimum of 100 concurrent users without significant performance degradation.

## Data Load Time:

## Load large datasets efficiently, with a maximum load time of 5 seconds for substantial

## financial data.

## Safety Requirement

Ensuring the security of user financial data is paramount. The Expense Tracker project incorporates robust

data security measures by implementing industry-standard encryption protocols. This safeguards the

confidentiality and integrity of sensitive user information. Furthermore, the system conducts daily

automated backups, reducing the risk of data loss, and ensuring a quick data recovery process in the event

of unforeseen system failures.

## Security Requirement

* + - System will use secured database
    - Normal users can just read information but they cannot edit or modify anything except their personal and some other information.
    - System will have different types of users and every user has access constraints.
    - Proper user authentication should be provided.
    - No one should be able to hack users’ password.

## Requirement attributes

## Assigning attributes to requirements helps in prioritizing and organizing the implementation plan.

## The project defines priority levels for requirements, with critical features marked as high priority for initial implementation.

## Additionally, the stability of features is clearly indicated, distinguishing between stable and experimental functionalities.

## This attribute specification aids in effective project management and feature deployment.

## Business Rules

Enforcing specific business rules is crucial for the functionality of the Expense Tracker.

Mandatory categorization of expenses is a key rule to enhance data accuracy and streamline reporting.

The project also defines rules for budget allocation, ensuring an equitable distribution of budgets

across different expense categories based on user preferences and historical data. These rules contribute

to the effective management and organization of financial data.

## User Requirement

User requirements focus on ensuring a positive and user-friendly experience. The Expense Tracker project commits to accessibility standards, ensuring that the application is usable by individuals with disabilities. User training materials and a responsive support system are provided to assist users in navigating the application effectively. A feedback mechanism is implemented to gather user input for continuous improvement, and users are empowered with customization options, allowing them to tailor the interface, dashboard layouts, and report formats to meet their individual preferences. The system's cross-platform compatibility ensures accessibility across major web browsers and mobile devices, enhancing user convenience and widening

The system provides certain facilities to the users in the form of:-

* **Accessibility:**

Ensure that the application is accessible to users with disabilities, adhering to accessibility standards.

* **Training and Support:**

Provide user training materials and a responsive support system to assist users in navigating

the application effectively.

* **Feedback Mechanism:**

Implement a feedback mechanism to gather user input for continuous improvement of

the application.

* **Customization:**

Allow users to customize the interface, including dashboard layouts and report formats, to

meet individual preferences.

* **Cross-Platform Compatibility:**

Ensure the application is compatible with major web browsers and mobile devices to facilitate

a broader user base.

# Other Requirements

## Data and Category Requirement

## The Expense Tracker project has specific data requirements to ensure efficient and organized financial

## tracking. The system is designed to handle a diverse range of financial transactions, including income and

## expenses. Data storage should be scalable to accommodate increasing user data over time. Additionally,

## there is a requirement for data integrity, with regular data validation checks to identify and rectify

## inconsistencies or errors. The system should support multiple categories for transactions, both predefined

## and customizable, allowing users to effectively categorize and organize their financial activities.

## Appendix

A: Authentication, API, Assumptions, Abbreviations; B: Budgets, Backup, Business Rules; C: Categories, Customization, Currency; D: Data Security, Dependencies, Documentation;

G: Graphs, GUI, Guidelines; K: Key; N: Non-functional Requirement; O: Operating environment; P: Privacy, Performance, Preferences; R: Requirement, Requirement attributes; S: Security, Sync, Support; U: User Roles, Usability, Updates,User Requirement.

## Glossary

The following are the list of conventions and acronyms used in this document and the project as well:

* Transaction: A financial activity recorded in the system, encompassing both income and expenditure.
* Category: A classification assigned to transactions for organizational purposes. Categories can be predefined or customized by users.
* Administrator: A privileged user with elevated access rights, responsible for monitoring and managing the entire system.
* Data Encryption: The process of encoding sensitive data to protect it from unauthorized access, enhancing overall system security.
* Fine: A monetary penalty imposed on users for overdue returns or other policy violations.
* SQL: Structured Query Language; used to retrieve information from a database
* Layer: Represents a section of the project
* User Interface Layer: The section of the assignment referring to what the user interacts with directly
* Application Logic Layer: The section of the assignment referring to the Web Server. This is where all computations are completed
* Data Storage Layer: The section of the assignment referring to where all data is recorded
* Use Case: A broad level diagram of the project showing a basic overview
* Class diagram: It is a type of static structure diagram that describes the structure of a system by showing the system’s cases, their attributes, and the relationships between the classes
* Interface: Something used to communicate across different mediums
* Unique Key: Used to differentiate entries in a database

## Class Diagram

A class is an abstract, user-defined description of a type of data. It identifies the attributes of the data and the operations that can be performed on instances (i.e. objects) of the data. A class of data has a name, a set of attributes that describes its characteristics, and a set of operations that can be performed on the objects of that class. The classes’ structure and their relationships to each other frozen in time represent the static model. In this project there are certain main classes

which are related to other classes required for their working. There are different kinds of relationships between the classes as shown in the diagram like normal association, aggregation, and generalization. The relationships are depicted using a role name and multiplicities. Here ‘Librarian’, ‘Member’ and ‘Books’ are the most important classes which are related to other classes.

