SOFTWARE REQUIREMENTS SPECIFICATION

For

Expense Tracker

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1. Introduction

1.1 Purpose

The Expense Tracker software aims to address the need for a comprehensive and user-friendly tool to assist individuals in tracking their monthly expenditures and managing financial resources effectively. In an era of diverse spending patterns and varying financial goals, this software endeavors to provide a centralized platform for users to record, categorize, and analyze their expenses effortlessly

1.2 Document Conventions

- Entire document should be justified.
- Convention for Main title
  - Font face: Times New Roman
  - Font style: Bold
  - Font Size: 14
- Convention for Subtitle
  - Font face: Times New Roman
  - Font style: Bold
  - Font Size: 12
- Convention for body
  - Font face: Times New Roman
  - Font Size: 12

1.3 Scope of Development Project

The scope of the Expense Tracker project encompasses the design, development, and implementation of a robust software application that facilitates comprehensive financial management for individuals. The software will provide users with the capability to track and categorize daily, weekly, and monthly expenses, allowing for a nuanced understanding of spending patterns. Furthermore, the inclusion of a loan management feature enables users to maintain a detailed record of monthly loan payments and associated expenditures. The software's intuitive user interface consolidates all financial data, ensuring a seamless and efficient user experience. A proactive budget warning system will alert users when approaching or surpassing predefined budget limits, enabling timely decision-making. The project also introduces a category-specific tracking system, empowering users to allocate expenses to specific items and services. The end goal is to offer a unified platform that enhances financial awareness, encourages responsible spending, and provides valuable insights into individual financial habits.

1.4 Definitions, Acronyms and Abbreviations

JAVA -> platform independence
SQL-> Structured query Language
ER-> Entity Relationship
UML -> Unified Modeling Language
IDE-> Integrated Development Environment
SRS-> Software Requirement Specification

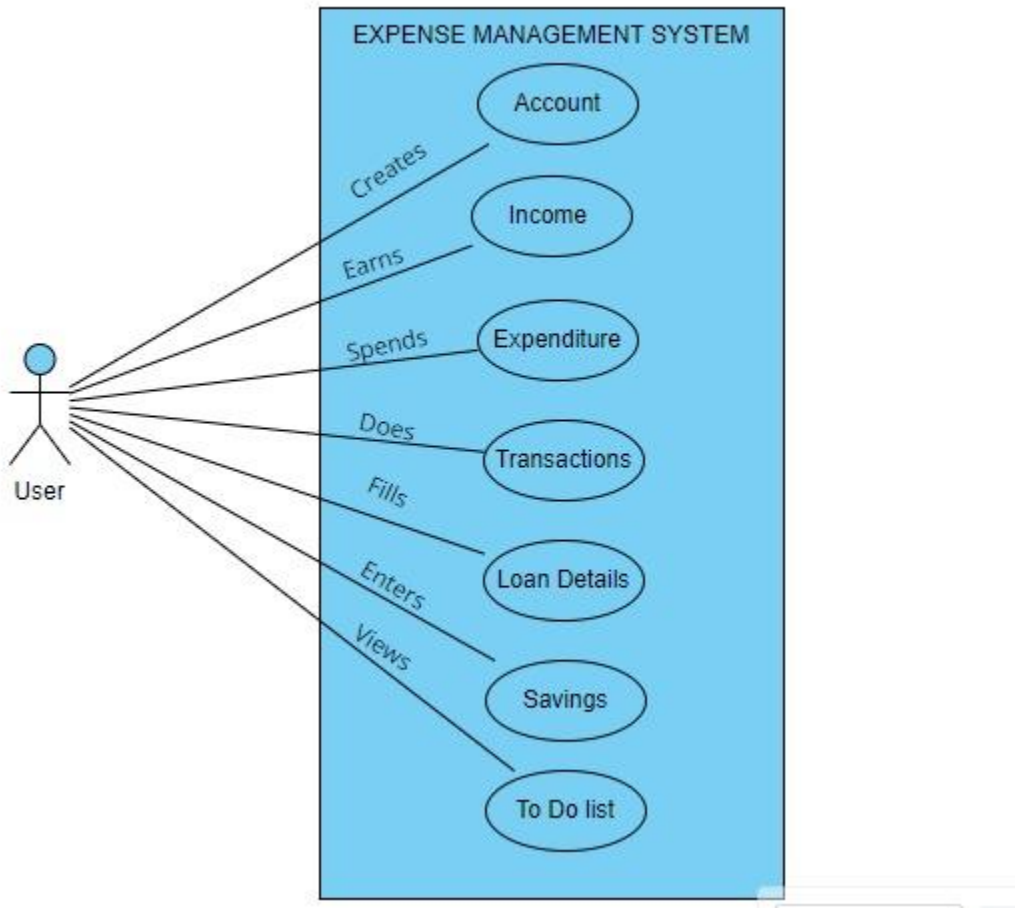
1.5 References

- 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
  - **https://ijirt.org/Article?manuscript=150860**
  - **https://www.mindinventory.com/blog/expense-tracking-app-development-features/**

2. Overall Descriptions

2.1 Product Perspective

Use Case Diagram of Library Management System

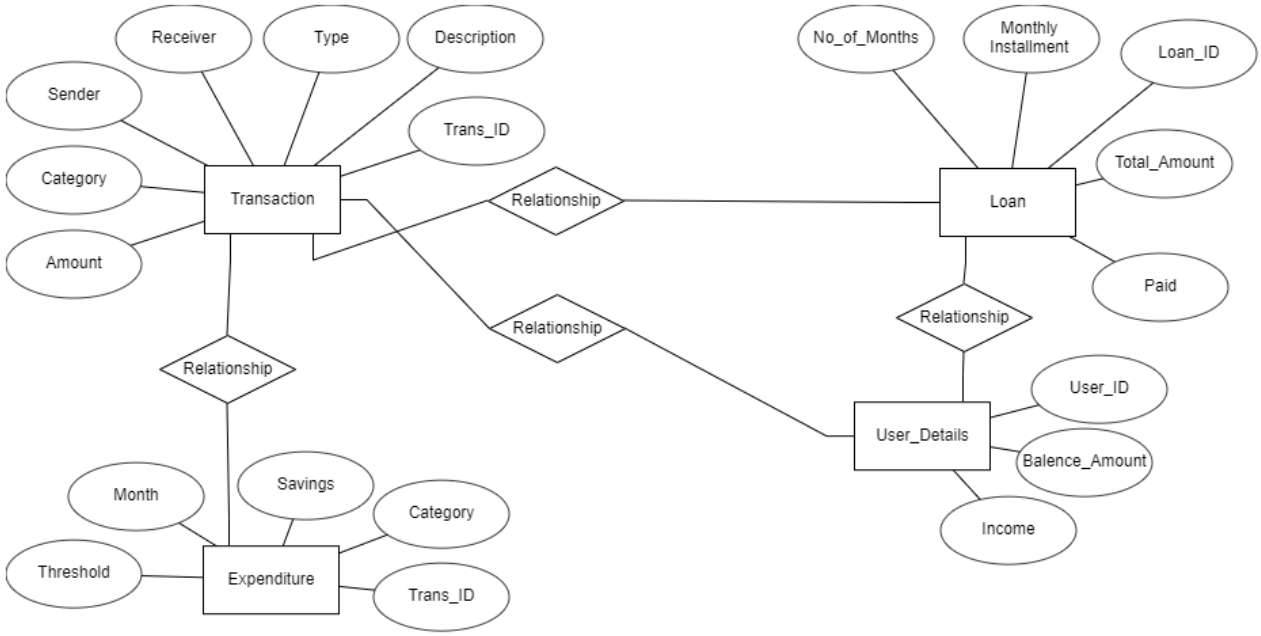


This is a broad level diagram of the project showing a basic overview. The users can be either staff or student. This System will provide a search functionality to facilitate the search of resources. This search will be based on various categories viz. book name or the ISBN. Further the library staff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

2.2 Product Function

Entity Relationship Diagram of Library Management System



This is an ER (Entity Relationship) diagram for an expense tracker application. It shows the different entities and their relationships in the application.

The diagram consists of 9 entities: Transaction, Loan, User Details, Income, Expenditure, Savings, Month, Threshold, and Category.

- The Transaction entity is the central entity and is connected to all other entities.
- The Loan entity is connected to the Transaction entity and the User Details entity.
- The User Details entity is connected to the Income, Expenditure, and Savings entities.
- The Income and Expenditure entities are connected to the Month and Threshold entities.
- The Savings entity is connected to the Category entity.
- The Month entity is connected to the Threshold entity.

The diagram also contains a table with the following columns:

Receiver, Sender, Category, Amount, Month, Threshold, Expenditure, Savings, Type, Description, No. of Months,Monthly Installment, Loan ID, Total Amount, Paid, User ID.

2.3 User Classes and Characteristics

2.4 Operating Environment

The product is designed to function within a Windows environment. The Library Management System is a web-based application intended to be compatible with widely used browsers, such as Microsoft Internet Explorer, Google Chrome, and Mozilla Firefox. Specifically, compatibility is ensured with IE 6.0, and most features are also supported on Mozilla Firefox and Opera 7.0 or newer versions. The sole requirement for utilizing this online product is an internet connection.
In terms of hardware configuration, the recommended specifications include a 40 GB hard disk, a 15" color monitor, and a keyboard with 122 keys. The essential input devices comprise a keyboard and a mouse, while output devices encompass a monitor and a printer, among others.

2.5 Assumptions and Dependencies

The assumptions are: -

- The coding should be error free
- The system should be user-friendly so that it is easy to use for the users
- The information of all expenses, income and expenditure must be stored in a database that isaccessible by the website
- The system should have more storage capacity and provide fast access to the database
- The system should provide search facility and support quick transactions
- The Library System is running 24 hours a day
- Users may access from any computer that has Internet browsing capabilities and an Internet connection
- Users must have their correct usernames and passwords to enter into their online accounts and do actions

The dependencies are: -

- The specific hardware and software due to which the product will be run
- On the basis of listing requirements and specification the project will be developed and run
- The end users (admin) should have proper understanding of the product
- The system should have the general report stored
- The information of all the users must be stored in a database that is accessible by the Library System
- Any update regarding the book from the library is to be recorded to the database and the data entered should be correct

2.6 Requirement

Software Configuration: -

This software package is developed using java as front end which is supported by sun microsystem. 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 CPUHard Disk: 40GB
RAM: 256 MB or more

2.7 Data Requirement

In the context of an expense tracker application, the inputs revolve around user-generated queries directed at the database. Users initiate actions such as recording expenses, categorizing spending, and setting budget parameters. These queries form the input stream that the application processes. The output, in turn, comprises comprehensive solutions to these queries. This involves presenting users with detailed summaries of their financial activities, including expenditure breakdowns, budget adherence, and transaction histories.

additionally, the output encompasses the provision of specific account details upon user request. Users can inquire about their financial status, viewing a timestamped record of expenses, income, and overall account balance. The application ensures a user-friendly interface for transparent access to these details, facilitating informed financial decision-making. Essentially, the expense tracker application serves as a dynamic tool, transforming user-initiated queries into insightful outputs, empowering individuals to manage and understand their financial landscapes effectively.

3. External Interface Requirements:

3.1 GUI

The Expense Tracker software boasts an intuitive graphical interface tailored for users, ensuring seamless operations for tasks such as expense logging, categorization, and financial analysis. The user interface is designed with the following key features:

Quick Reports:

Users can effortlessly generate quick reports to track expenses issued or returned within specific timeframes, enhancing visibility into their financial activities.

Stock Verification and Search:

The application provides a robust stock verification mechanism along with a versatile search feature, empowering users to locate and manage expenses based on diverse criteria.

Customizable Interface:

Users have the flexibility to customize the user interface, tailoring it to specific preferences and ensuring a personalized experience for efficient expense management.

Modular Integration:

All software modules seamlessly integrate into the graphical user interface, adhering to standardized design principles and achieving a cohesive and user-friendly system.

Simple Design:

The design philosophy prioritizes simplicity, ensuring that users can navigate through different interfaces effortlessly. A standardized template is followed across all modules for consistency.

User Management Integration:

The user interface seamlessly interacts with the user management module, dedicating a

section to the login/logout module for secure and efficient access.

Login Interface:

Users can either register for a new account by entering their details or log in using their existing credentials. The system validates the username and password, displaying an error message for any incorrect entries.

Search Functionality:

Users can search for specific expenses by entering relevant details, providing a quick and efficient way to locate and manage financial transactions.

Category View:

The Category View section displays expense categories, offering librarians the ability to add, edit, or delete categories to enhance organizational efficiency.

4. System Features

Ensuring the security of user accounts is a paramount feature of the Expense Tracker system, providing users with confidence in their financial data. Key system features include:

User Authentication:

Users gain access through secure authentication, utilizing unique identifiers such as member IDs. This ensures that only authorized individuals can log in and manage their expense accounts.

Accountability Measures:

The system prioritizes user privacy by restricting members from accessing other users' accounts. Only the users possesses the authority to view and manage all member accounts, ensuring proper accountability and safeguarding individual financial information.

5. Other Non-functional Requirements

5.1 Performance Requirement

The proposed Expense Tracker system is positioned as the primary performance system across diverse user interactions within the project scope. Key performance requirements include:

Fast and accurate system performance

Efficient handling of expected and unexpected errors, preventing data loss and extended downtime, with built-in error testing for invalid username/password

Ability to handle large volumes of data, accommodating a high number of books and users without faults

5.2 Safety Requirement

To safeguard against potential database issues arising from factors like viruses or operating system failures, regular backups of the expense tracker database are essential. This precautionary measure ensures the integrity and availability of expense data. Additionally, the system should be equipped with an uninterruptible power supply (UPS) or inverter facility to mitigate the impact of power supply failures, ensuring continuous operation and preventing data loss due to unexpected power outages.

5.3 Security Requirement

In ensuring the security of the Expense Tracker system:

- The system will utilize a secure database infrastructure to protect sensitive financial information.
- User access privileges will be strictly controlled, allowing normal users read-only access with restrictions on editing or modifying any data, except for their personal information
- Different user types will be defined, each with specific access constraints tailored to their roles.
- Stringent measures will be in place to prevent any unauthorized access to or hacking of users' passwords.

The system will maintain separate accounts for users and members. Members will have limited access, ensuring they cannot access the entire database, while users will have exclusive rights to update and manage the database securely

5.4 Requirement attributes

- There may be multiple admins creating the project, all of them will have the right to create changes to the system. But the members or
- other users cannot do changes
- The project should be open source
- The Quality of the database is maintained in such a way so that it can be very user friendly to all the users of the database
- The user be able to easily download and install the system

5.5 Business Rules

The Expense Tracker adheres to key business rules to ensure the integrity and security of financial data. Users are mandated to authenticate their identity through secure login credentials. Access control measures dictate that normal users can only view information, with limitations on editing or modifying data, while users possess exclusive rights for database management. Accurate expense categorization is enforced to derive meaningful insights, urging users to assign expenses to specific categories for effective financial analysis.

5.6 User Requirement

The Expense Tracker serves two primary user roles: regular users (members) Members are expected to possess basic computer and internet browsing knowledge.Users, who act as system custodians, require a deeper understanding of the system internals to address potential issues and maintain system health. The system prioritizes user education through an intuitive interface, comprehensive user manual, online help, and installation and maintenance guides.

Key facilities provided to users include:

User Requirements for Expense Tracker

For Members:

1. Secure Data Management:

   Log and categorize expenses securely.

2. User-Friendly Interface:

   Navigate the system easily for seamless expense tracking.

3. Reports and Analytics:
   Generate detailed reports and analytics for financial insights.
4. Budget Management:
   Set, customize, and monitor budget limits for expense categories.
5. Data Backup and Recovery:
   Safeguard and retrieve expense data with a robust backup system

5.7 User Classes and Characteristics

- They can log and categorize expenses securely.
- Navigate the system easily for seamless expense tracking.
- Generate detailed reports and analytics for financial insights.
- Set, customize, and monitor budget limits for expense categories.
- Safeguard and retrieve expense data with a robust backup system.
- Utilize a password recovery mechanism for account access.
- Experience secure data migration during registration and data replication to prevent loss.
- Benefit from auto-saving features to prevent data loss.
- Access effective file organization for streamlined data management.

For Members:

- Members, representing students or staff, utilize the Expense Tracker for online expense management.
- They can log and categorize expenses securely.
- Navigate the system easily for seamless expense tracking.
- Generate detailed reports and analytics for financial insights.
- Set, customize, and monitor budget limits for expense categories.
- Safeguard and retrieve expense data with a robust backup system.
- Utilize a password recovery mechanism for account access.
- Experience secure data migration during registration and data replication to prevent loss.
- Benefit from auto-saving features to prevent data loss.
- Access effective file organization for streamlined data management.

These user classes and characteristics ensure that both users and members can effectively utilize the Expense Tracker for secure and streamlined expense tracking and financial management.

6. Other Requirements

6.1 Data and Category Requirement:

In the Expense Tracker project, user categorization is crucial to determine access rights and functionalities. The system recognizes various user categories such as users, teaching staff, librarians, and students. Access rights are contingent upon the user's category; users can modify, delete, and append data, while other users, excluding librarians, are limited to retrieving database information.

Additionally, the Expense Tracker implements diverse categories for expenses, mirroring the various types of financial transactions. Each expense category requires a specific format to ensure

consistency and efficient data representation. The system organizes and codes data in a structured manner, aligning with the corresponding expense categories. This systematic approach facilitates accurate and meaningful representation of financial data, enhancing the user's ability to retrieve and analyze expense information.

6.2 Appendix

A: Abbreviation, Assumptions
B: Budgets, Business Rules
C: Categories, Client, Conventions
D: Data Requirement, Dependencies
G: GUI
K: Key
L: Librarian, Login
M: Member, Monthly Report
N: Non-functional Requirement
O: Operating Environment, Overview
P: Performance, Perspective, Purpose
R: Reports, Requirement, Requirement Attributes
S: Security, System Features, Search
U: User, User Classes and Characteristics, User Requirement

6.3 Glossary

The following conventions and acronyms are used in this Expense Tracker document and project

- User: A general login ID assigned to most users.
- Client: Intended users for the software.
- SQL: Structured Query Language; used to retrieve information from a database.
- SQL Server: A server used to store data in an organized format.
- 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: 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.