
PROJECT: EXPENSIFY

IT314 – SOFTWARE ENGINEERING GROUP 26

TASK : SYSTEM DESIGN

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Combined System Design for Expense Tracker Project

The expense tracker software is divided into three primary subsystems :

Subsystem 1: User Management & Security

This subsystem focuses on account management, authentication, and data security, ensuring secure access and administrative control.

Components and Features:

1. User Account Management & Authentication:

- Account registration, login, and logout.
- Password recovery using secure methods.
- Multi-language support for a customizable user interface.

2. System Administration:

- Admin capabilities for managing user accounts, system updates, and issue resolution.
- Feedback management to collect and act on user suggestions.

3. Data Security Enforcement:

- Encryption of user data, secure storage, and protection against unauthorized access.
- Implementation of security measures to handle sensitive financial data.

Data Flow:

1. User submits credentials → Authentication Server validates credentials → Grants access.

2. Admins update user data/system settings → Changes are reflected across all connected systems.
 3. Security protocols actively monitor and manage data access.
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Subsystem 2: Expense & Financial Management

This core subsystem enables users to track expenses, set budgets, and gain financial insights.

Components and Features:

1. Expense Tracking & Budget Management:

- Input forms for recording expenses, including category and date.
- Budget setting with real-time notifications for exceeding daily limits.
- Emergency fund management to support financial planning.

2. Financial Insights & Reporting:

- Comprehensive expense history views.
- Expense reminders for recurring payments.
- Automated generation of financial reports and dynamic budget adjustments.

3. Advanced Financial Features:

- Support for multiple currencies and currency conversion.
- Dynamic budget adjustment based on spending patterns.

Data Flow:

1. User records expenses → Database updates transaction records.

2. Budgets and limits are set → Notifications trigger when limits are surpassed.
 3. Reports generated on-demand → Aggregated data presented in charts and graphs.
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Subsystem 3: Invoice & Advertisement Management

This subsystem handles invoicing, payment tracking, and ad campaign monitoring.

Components and Features:

1. Invoicing & Payment Tracking:

- Creation and management of invoices for projects.
- Payment status tracking and reminders for overdue payments.

2. Advertisement Management:

- Ad campaign creation, demographic targeting, and performance tracking.
- Analytics dashboard for visualizing campaign success and ROI.

3. Ad Performance Monitoring:

- Detailed analytics on clicks, impressions, and engagement rates.
- Real-time reporting for campaign optimization.

Data Flow:

1. User generates invoices → System tracks payment progress → Sends reminders if overdue.

2. Admins create ad campaigns → Campaign data feeds into the analytics engine → Performance reports are generated.

Combined Class Diagram for Expense Tracker Project

