Ankara Yıldırım Beyazıt University
Department of Computer Engineering

CENG 201 – Object Oriented Programming
Course Project

Expense Tracker Application
Group 17

Analysis Report

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1. Introduction

This project involves developing an expense tracking application that enables users to log expenses, categorize them, set monthly budgets, and receive notifications if they approach or exceed their budget limits. The application is intended for multiple users, allowing each to manage their expenses independently while accessing reporting and budgetary insights.

2. Requirements

2.1. Functional Requirements

Inclusions

The application will include:

User Profiles: Each user can create an individual profile, allowing for personal expense management and budgeting.

Expense Management: Users can log and categorize expenses by types (e.g., food, transport, entertainment).

Expense Reports: The system will generate monthly (or customizable) expense reports, providing insights into spending trends.

Notifications and Alerts: Users will receive alerts if they are close to or have exceeded their budget.

Exclusions

This project will not include:

Integration with third-party financial services or bank accounts.

Advanced data analytics or machine learning-based spending predictions.

2.2. Non-Functional Requirements

Should not have a memory leak crashing the application.
The interface should be simple and user-friendly
The application must be secure, user passwords must be stored well
The application must be fast and the user's requests must be responded to in a timely manner
The application should be able to handle with the multitude of users and should not give unexpected reactions when the number of users increases.

3. System Models

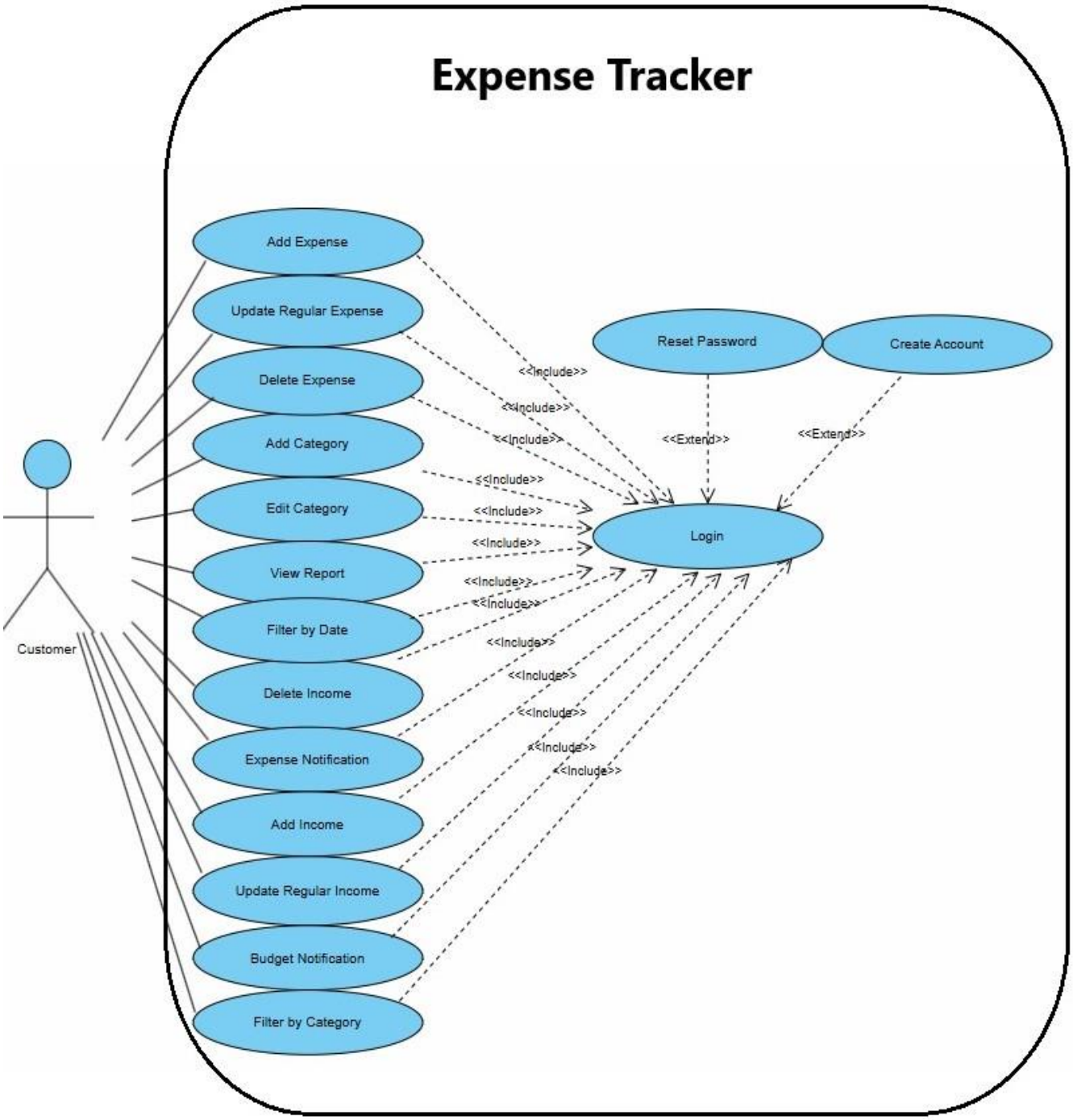
3.1. Scenarios

- The user enters the application, opens the reports tab, and requests a budget comparison report for grocery expenses.

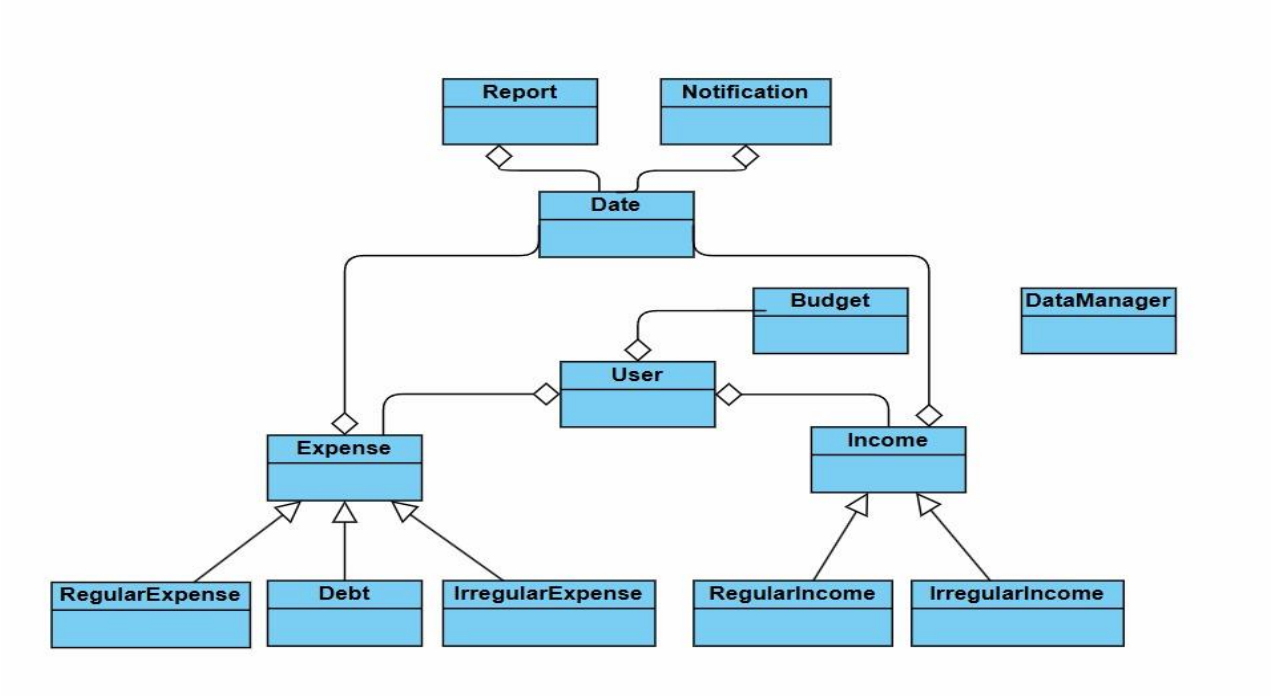
- The user wants to log in to the application but has forgotten her/him password. Then uses the "forgot password" option, resets her/him password, and then logs in to the application.

- The user logs into the application, opens the expenses tab, and records the expense for the newly purchased DVD set under the entertainment category. The application checks the budget set for entertainment and gives the user a warning that her/him budget is nearing its limit.

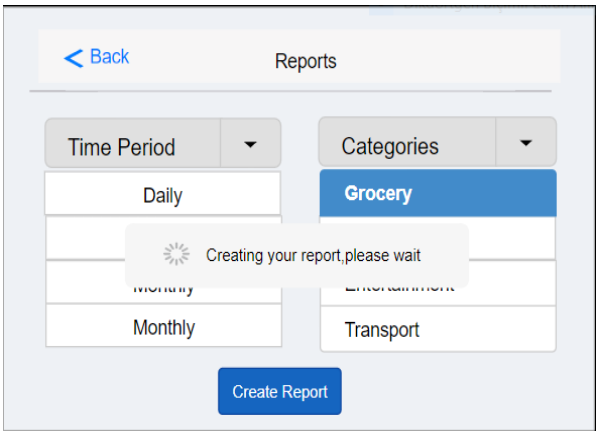
3.2. Use Cases

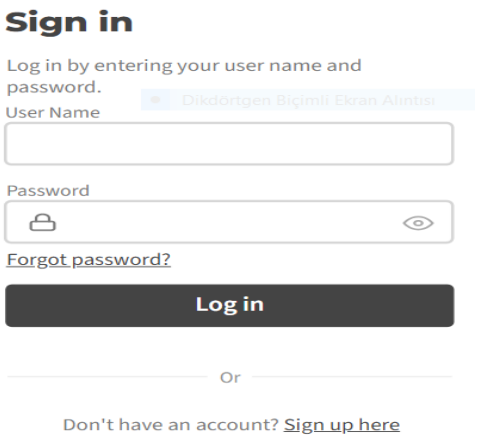

Expense Tracker
Add Expense
Update Regular Expense
Delete Expense
Add Category
Edit Category
View Report
Filter by Date
Delete Income
Expense Notification
Add Income
Update Regular Income
Budget Notification
Filter by Category
Reset Password
Create Account
Login
Customer
<<Include>>
<<Extend>>

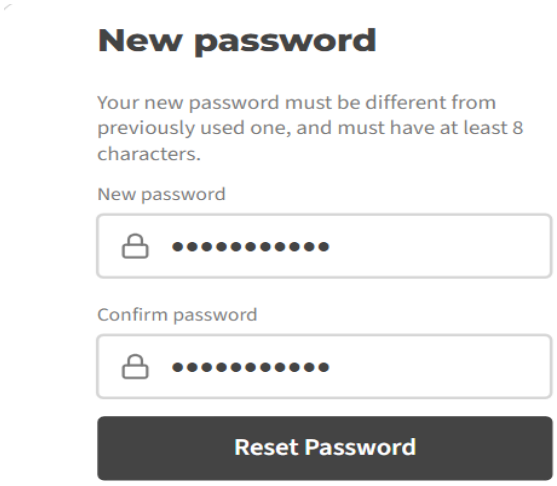
3.3. Object and Class Model

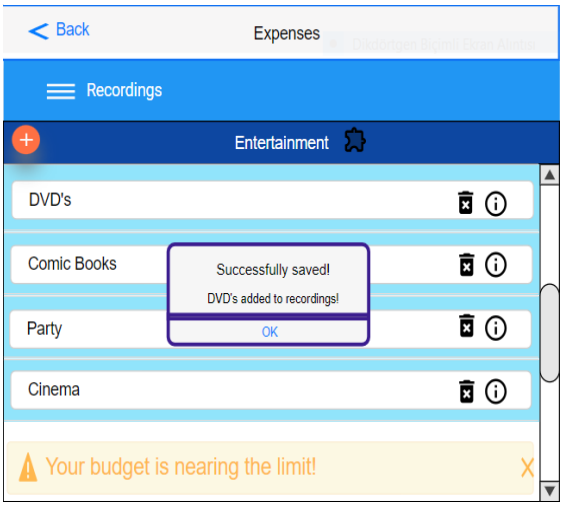


3.4. User Interfaces









4. Conclusion

In this report, we defined what the Expense Tracker application is and its intended use, outlining both functional and non-functional requirements. Then, we created several scenarios and, based on them, developed the UML Use Case Diagram and object-class model for our project. We also included a few drawings for the interface we plan to design. Introduction and functional-non-functional requirements were determined and written by Mehmet Emre Yıldız.
The scenarios and representative interface drawings were written and made by Nurten Çiftçioğlu. UML Use Case Diagram and Class-Object Model created by Furkan Demir and also our friend Mustafa Kemal Mustafa Mustafa contributed to this analysis by giving us his ideas in all report sections.