International University of Business Agriculture and Technology

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Group Name: Quad Coder

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Project Name: MoneyExpense – Spending Tracker

Overview of the Project: As a student we have to utilize (expense/cost) the money properly for the whole month. Sometimes, we are out of money at the end of last week. Because we don't know where we expense/invest our money. So, we thought we will develop a spending tracker application where we can observe in which particular categories we have invest/expense our money. Also, we can see the current uses of money for the current month. Seems it will help us to find the how much money I spent already and what were the categories.

Project Functionalities:

1. Add Category (Unique)
2. Delete Category
3. Add expense based on date, category.
4. Delete selected expense
5. Show(filter) expense based on categories
6. Show (filter) expense based on months (date wise)
7. Show current months expense (total)
8. Show all month's expense (total)

Abstract

Managing personal finances can be tricky, especially when you don't know where your money is going. As students, we've all been there—running out of cash by the end of the month without really knowing what happened. That's why we created **MoneyExpense – Spending Tracker**, a JavaFX-based app that helps track your expenses in a more organized way.

With this tool, users can categorize their spending, keep an eye on monthly expenses, and visualize exactly where their money went. Features include adding categories, tracking expenses by date and category, and viewing a summary of expenses by month. The app aims to simplify the process of budgeting and help users stay on top of their financial situation.

2. Table of Contents

1. Introduction

We've all faced the challenge of budgeting—especially when money seems to vanish without us even realizing where it went. As a group of students, we decided to build a simple tool that would let us track where our money is being spent. We wanted something that would show us not just the totals, but also break down expenses into categories so we could better understand our spending habits. And that's how the **MoneyExpense – Spending Tracker** was born.

The application is built with **JavaFX**, which is great for creating sleek desktop applications. The goal was to keep the UI simple, intuitive, and responsive. Users can easily add or remove expense categories, input their expenses, and view detailed reports of their spending over time.

2. Project Objective

The main goal of this project was to create a desktop application that helps users manage their personal finances by tracking monthly expenses. Some of the core functionalities include:

- Creating and deleting categories for different types of expenses.
- Adding and deleting expenses with details like date and category.
- Filtering expenses by category or by month to help users get a clear picture of their spending habits.
- Showing a summary of total expenses for the current month and over time.

This project was designed to make it easier for students—and anyone really—to stay on top of their finances and make smarter spending decisions.

3. System Design

For this project, we chose the **Model-View-Controller (MVC)** architecture to keep the code clean and maintainable:

- **Model**: Manages the data. This includes the expenses, categories, and related logic.
- **View**: The user interface, built using JavaFX's scene graph. This is what the user interacts with—buttons, tables, and input fields.
- **Controller**: Handles user actions (like adding an expense or deleting a category), updates the model, and refreshes the view accordingly.

We kept the design simple:

1. **Category Management**: Users can add new expense categories or delete old ones.
2. **Expense Entry**: A form where users can enter expenses with a specific date and category.
3. **Expense View**: A table that lists all expenses and allows users to filter them by category or month.
4. **Expense Summary**: Displays the total expenses for the current month and aggregates totals for previous months.

4. Technologies Used

- **JavaFX**: This was the framework of choice for creating the application's user interface. JavaFX makes it easy to create interactive and attractive desktop apps.
- **SQLite** (or MySQL if used): A simple database to store user data and expenses. We wanted the app to remember past expenses even after closing.
- **Apache NetBeans IDE**: This helped us design the user interface visually, making the whole process a lot easier than hand-coding all the UI components.

5. Development Process

Here’s a quick rundown of how we approached this project:

1. **Planning**:
   First, we brainstormed the features we needed: categories for expenses, a way to track expenses by date, and the ability to see summaries. Once we had a clear idea of what the app should do, we started designing.

2. **Design**:
   We decided on a simple yet functional UI. Using Scene Builder, we laid out the basic components—buttons, tables, and charts.

3. **Implementation**:
   We broke down the features into manageable tasks. First, we implemented the category management functionality, followed by expense entry and filtering options.

4. **Testing**:
   After getting everything up and running, we tested the application for any bugs or issues. We made sure the adding/deleting categories worked and that the filters were displaying accurate results.

6. Results and Testing

- **Testing Approach**:
  We did manual testing by entering different types of expenses and categories to ensure everything was working. We also tested the filtering feature—making sure the app correctly filtered by category and month.
- **Results**:
  All core features were successfully implemented:
  - Expense categories can be added and deleted.
  - Expenses could be logged and displayed in a table, with filters working correctly.
  - The summary page showed the total expenses accurately.
- **User Feedback**:
  Early testers found the app easy to use, and they particularly liked the ability to filter by month and category. A few suggested adding pie charts for better visualization of spending, which could be a future improvement.

7. Challenges and Solutions

- **Challenge 1: Handling Expense Filters**
  At first, filtering expenses by category or month wasn't as straightforward as we thought. We resolved this by structuring the data well and using JavaFX's TableView components to dynamically update the list of expenses based on selected filters.

8. Conclusion

In the end, the **MoneyExpense – Spending Tracker** application successfully meets its goal of helping users manage their expenses. It allows students and anyone who wants to track their spending to categorize expenses, filter by month, and get a clear view of their financial situation.

We've learned a lot throughout this project—both in terms of JavaFX development and how to structure an app with MVC. If we had more time, we'd add features like graphs for better data visualization and maybe even an export option for expense reports.

9. References

- Oracle JavaFX Documentation: https://docs.oracle.com/javase/8/javafx/api/
- MySQL Documentation: https://www.w3schools.com/mysql/default.asp