PROJECT REPORT: FINANCE TRACKER

PREPARED BY: KISEKKA SSUNA T ELVIS

INSTITUTION: UGANDA CHRISTIAN UNIVERSITY (UCU)

DATE: DECEMBER 5th, 2024

1. PROJECT OVERVIEW

The Finance Tracker is a web-based application designed to help users efficiently manage their personal finances by logging, categorizing, and tracking expenses. This project is part of my coursework in Information Technology and demonstrates my understanding of full-stack development, database integration, and user interface design.

2. OBJECTIVES

The key objectives of the Finance Tracker project include:

1. Allowing users to securely create accounts and log in to manage their data.
2. Providing functionality for users to log expenses, categorized by type (e.g., tuition, food, entertainment).
3. Allowing users to edit and update expense records.
4. Displaying a user-friendly dashboard summarizing financial data.

3. TECHNOLOGIES AND TOOLS USED

Front-End Technologies

- HTML & CSS: For structuring and styling the application.
- Bootstrap: To create a responsive and professional user interface.

Back-End Technologies

- PHP: For server-side scripting and logic implementation.
- MySQL: For database management, storing user accounts, and financial records.

Development Environment

- VS Code: The primary IDE for development.
- GitHub: For version control and project management.
- XAMPP: As the local server for development and testing.

4. FEATURES

a. User Authentication

- Purpose: To secure user data and provide personalized access.
- Description: Users can register with their email and password. Passwords are hashed using PHP's password_hash function for enhanced security. Sessions (session_start) ensure authenticated access to the dashboard and other protected pages.

b. Add Expense

- Purpose: To allow users to log financial expenses.
- Description:
- Users input the amount, category (e.g., food, transportation), date, and a short description.
- Data is submitted via a form and stored in the MySQL database using prepared statements to prevent SQL injection.

c. Edit Expense

- Purpose: To enable users to update existing expense records.
- Description:
- Users can open a pre-filled form for editing any expense record.
- Changes are validated and updated in the database securely.

d. Dashboard

- Purpose: To provide users with an overview of their financial activities.
- Description:
- Displays a summary of expenses categorized by type.
- Enables navigation to add, edit, or delete records.

5. Implementation Details

Database Design

- Database Name: students db
- Key Tables:

1. users: Stores user account details (id, username, email, password).

2. expenses: Stores expense data (id, user_id, category_id, amount, description, expense_date).

Code Highlights

1. User Authentication:

```
if (!isset($_SESSION['user_id'])) {
  header("Location: login.php");
  exit;
}
```

Ensures that only authenticated users can access the dashboard and other private pages.

2. Database Security:

```
$stmt = $conn->prepare("INSERT INTO expenses (user_id, category_id, amount, description, expense_date) VALUES (?, ?, ?, ?, ?)");
$stmt->bind_param("iidss", $user_id, $category_id, $amount, $description, $expense_date);
```

Prepared statements are used to prevent SQL injection.

6. Challenges Encountered

1. Secure User Authentication:
   - Issue: Managing user sessions securely and hashing passwords.
   - Solution: Used password_hash and password_verify for secure password handling.
2. Database Naming and Structure:
   - Issue: Encountered issues due to a space in the database name.
   - Solution: Updated connection strings to include the correct name and verified table structures.
3. Responsive UI Design:
   - Issue: Ensuring the application was mobile-friendly.
   - Solution: Used Bootstrap's grid system for responsiveness.

7. Results

The Finance Tracker application is fully functional and meets the initial objectives:

- Users can securely log in, add, and edit expenses.
- The dashboard provides an organized view of financial data.
- The application is responsive and works on both desktop and mobile devices.

8. Lessons Learned

1. Database Management: Proper planning and organization of database tables simplify implementation.
2. Secure Coding Practices: Using prepared statements and session handling improves application security.
3. UI/UX Design: A clean and responsive interface enhances user experience.

9. Future Enhancements

1. Analytics Dashboard: Add graphs and charts to visualize spending trends.
2. Export Options: Enable users to export expenses as PDF or Excel files.
3. Role-Based Access: Allow different levels of access for admin and standard users.
4. Mobile App: Build a mobile application for on-the-go expense tracking.

10. Conclusion

Finance Tracker is a practical web application that simplifies financial management. By combining PHP, MySQL, and Bootstrap, I successfully developed a secure, functional, and user-friendly application. This project has been a valuable learning experience, demonstrating the importance of full-stack development and the challenges of building robust systems.

Appendices

- Screenshots: Include screenshots of the login page, add expense form, edit expense page, and dashboard.
- Code Files: Provide a GitHub link or zip file with all project files.

GITHUB LINK REPOSITORY

https://github.com/Ellyug-droid/finance-tracker-app.git