

Case Study

Finance Management System

Output

As part of the case study development in my Hexaware training program, I was assigned the task of developing a **Finance Management System** using **Java**.

SQL Database Design

The backend of the Finance Management System is powered by a MySQL relational database named Financedb.

```
CREATE DATABASE FinanceDB;
USE FinanceDB;

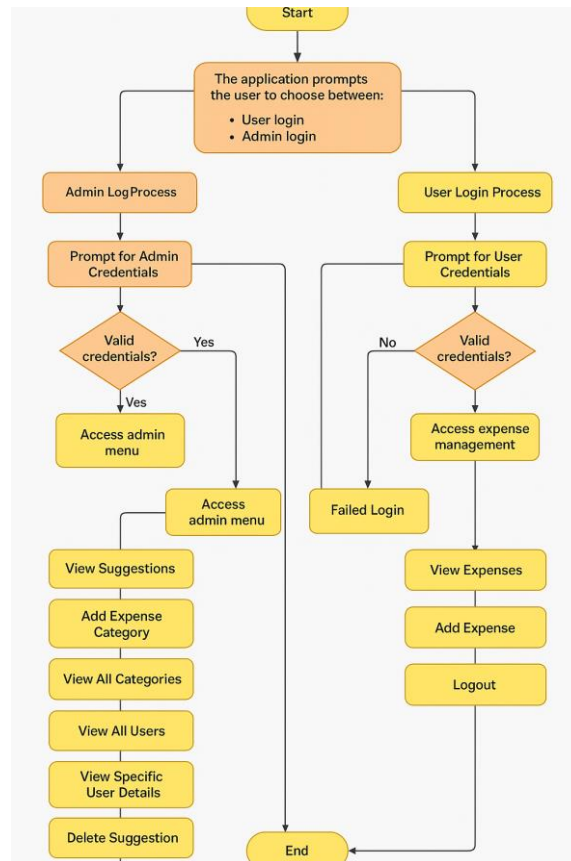
-- Create the Users Table
CREATE TABLE Users (
    user_id INT AUTO_INCREMENT PRIMARY KEY,
    username VARCHAR(50) NOT NULL UNIQUE,
    password VARCHAR(100) NOT NULL,
    email VARCHAR(100) NOT NULL UNIQUE
);

-- Create the ExpenseCategories Table
CREATE TABLE ExpenseCategories (
    category_id INT AUTO_INCREMENT PRIMARY KEY,
    category_name VARCHAR(50) NOT NULL UNIQUE
);

-- Create the Expenses Table
CREATE TABLE Expenses (
    expense_id INT AUTO_INCREMENT PRIMARY KEY,
    user_id INT NOT NULL,
    amount DECIMAL(10,2) NOT NULL,
    category_id INT NOT NULL,
    date DATE NOT NULL,
    description TEXT,
    FOREIGN KEY (user_id) REFERENCES Users(user_id) ON DELETE CASCADE,
    FOREIGN KEY (category_id) REFERENCES ExpenseCategories(category_id) ON DELETE CASCADE
);

CREATE TABLE admin (
    admin_id INT AUTO_INCREMENT PRIMARY KEY,
    admin_name VARCHAR(100) NOT NULL,
    password VARCHAR(100) NOT NULL
);

CREATE TABLE suggestions (
    suggestion_id INT AUTO_INCREMENT PRIMARY KEY,
    user_id INT,
    suggestion_text TEXT NOT NULL,
    FOREIGN KEY (user_id) REFERENCES users(user_id)
);
```



Workflow

Output :

```

-----
Finance Management System
"Manage your money wisely!"
-----

1. User
2. Admin
3. Exit
Enter your choice: 1
-----

1. Login
2. Create User
3. Exit
Enter your choice: 2
----- CREATE USER -----

Username: krish
Email: kresh@gmail.com
Password: eish
Account created successfully! Please login to continue.
UserId : 38, Username : 'Krish', Email : kresh@gmail.com'
-----
-----
  
```

```
----- LOGIN -----  
  
Email: kresh@gmail.com  
Password: eish  
  
-----  
Welcome Krish!  
  
----- USER MENU -----  
1. Create Expense  
2. View All Expenses  
3. Filter Expenses  
4. Update Expense  
5. Delete Expense  
6. Generate Report  
7. Suggestion  
8. Delete Account  
9. Logout
```

```
Choose an option: 1  
----- Add New Expense -----  
All Expense Categories:  
Category ID    Category Name  
1              Food & Dining  
2              Transportation  
3              Utilities  
4              Entertainment  
5              Healthcare  
6              Education  
7              Groceries  
8              Shopping  
9              Travel  
10             Fitness & Sports  
11             Insurance  
12             Investment  
13             Rent  
14             Miscellaneous  
17             Subscriptions  
Enter Category ID: 4  
Enter Amount: 500  
Enter Date (yyyy-mm-dd): 2025-04-02  
Enter Description/Note: Went theatre with friends  
  
Expense Added!  
Expense ID: 45  
Amount: 500.0  
Description: Went theatre with friends  
-----
```

```
----- Logout -----  
Choose an option: 2  
----- View All Expenses -----  
  
Expense ID    Category    Amount    Date    Description  
-----  
45            Entertainment    500.00    2025-04-02    Went theatre with friends  
-----
```

Choose an option: 3

----- Filter Expenses -----

1. Filter by Date

2. Filter by Category

Enter choice: 1

Enter From Date (yyyy-mm-dd): 2025-04-01

Enter To Date (yyyy-mm-dd): 2025-04-10

Expense ID	Category	Amount	Date	Description
45	Entertainment	500.00	2025-04-02	Went theatre with friends
46	Groceries	4500.00	2025-04-10	monthly grocery

----- Update Expense -----

Enter Expense ID to update: 46

All Expense Categories:

Category ID	Category Name
1	Food & Dining
2	Transportation
3	Utilities
4	Entertainment
5	Healthcare
6	Education
7	Groceries
8	Shopping
9	Travel
10	Fitness & Sports
11	Insurance
12	Investment
13	Rent
14	Miscellaneous
17	Subscriptions

Enter new Category ID (-1 to skip): -1

Enter new Amount (-1 to skip): 5000

Enter new Date (yyyy-mm-dd or 'na' to skip): na

Enter new Description ('na' to skip): na

Expense updated successfully!

ExpenseId : 46

Category : Groceries (ID: 7)

Amount : 5000.0

Date : 2025-04-10

Description : 'monthly grocery'

```
----- Delete Expense -----  
  
Enter Expense ID to delete: 48  
Are you sure you want to delete this expense? (yes/no): yes  
Expense deleted successfully!  
-----
```

```
-----  
Finance Management System  
"Manage your money wisely!"  
-----  
  
1. User  
2. Admin  
3. Exit  
Enter your choice: 2  
  
----- ADMIN -----  
Enter admin name: admin2  
Enter password: pass123  
Admin login successful!  
-----  
  
----- ADMIN MENU -----  
1. View Suggestions  
2. Add Expense Category  
3. View All Categories  
4. View All Users  
5. View Specific User Details  
6. Delete Suggestion  
7. Delete Category  
8. Log Out  
Enter your choice: |
```

Conclusion:

I have successfully implemented all the functionalities assigned to me as part of the task, ensuring that the application meets the required objectives. The key features, such as user authentication, expense management, categorization, report generation, and database connectivity, have been completed and integrated seamlessly. Through this process, I have gained valuable experience in developing a secure, user-friendly application with a focus on financial data management. I also enhanced my skills in working with databases, handling user interactions, and implementing features that contribute to both functionality and user experience. This project has further strengthened my understanding of application development and the importance of maintaining clean, efficient code for real-world applications.
