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Project Synopsis: Personal Finance Management System Using Java Microservices

Project Overview

The Personal Finance Management System is a modern solution designed to help individuals manage their finances effectively. By leveraging microservices architecture, the application provides modular and scalable functionality to track expenses, create budgets, monitor savings goals, and generate financial insights. The system is user-centric and designed to provide a seamless experience with real-time updates, personalized recommendations, and data security.

Objectives

- Provide users with a platform to manage their personal finances, including income, expenses, savings, and investments.
- Offer insights and recommendations to promote better financial habits.
- Ensure scalability, modularity, and flexibility using microservices architecture.
- Guarantee high data security and privacy.

Key Features

1. **Expense Tracking:** Add and categorize daily expenses with detailed transaction history.
2. **Budget Management:** Set monthly budgets and receive alerts when nearing limits.
3. **Savings Goal Tracking:** Define savings goals and track progress in real-time.
4. **Financial Insights:** AI-powered analytics and visualizations for better decision-making.
5. **Multi-Device Support:** Accessible through web platforms.
6. **Notifications and Alerts:** Personalized reminders for bill payments and goal tracking.

Microservices Architecture

Each core feature is developed as an independent microservice to ensure modularity and scalability:

1. **User Service:** Handles user authentication, registration, and profile management.
2. **Expense Service:** Manages expense logging and categorization.
3. **Budget Service:** Tracks budgets and generates alerts.
4. **Savings Service:** Tracks and updates savings goals.
5. **Transaction Service:** Monitors transactions of the user
6. **Category Service:** Manages the types of transactions.
7. **Notification Service:** Handles email and push notification.
8. **API Gateway:** Central point for routing requests to appropriate services.

Technologies Used

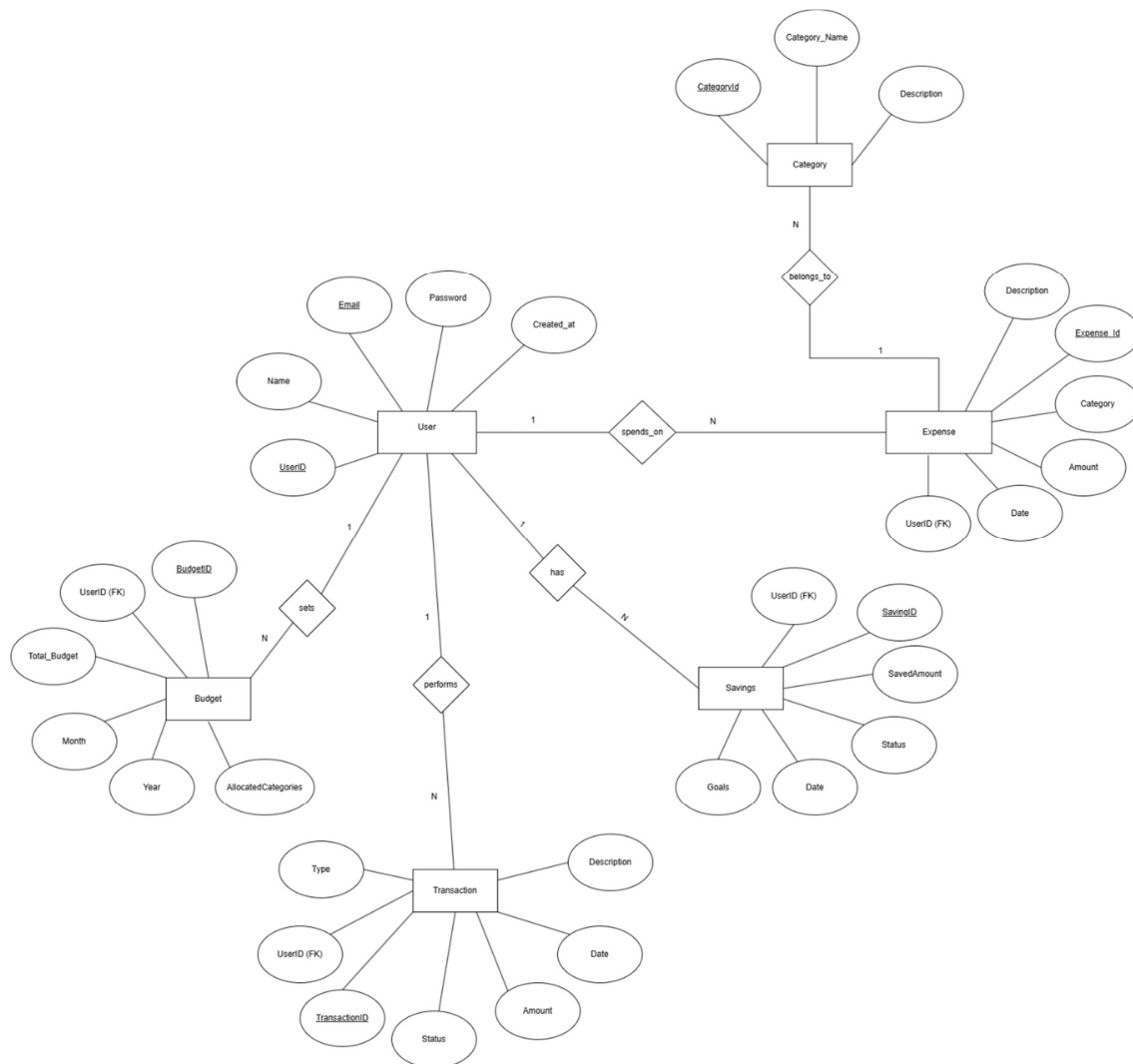
1. **Programming Language:**
 - Java (Spring Boot for microservices development)
2. **Frameworks and Libraries:**
 - Spring Cloud for microservices architecture (Eureka, Feign, Hystrix)
 - Hibernate for database integration
3. **Database:**
 - MySQL for relational data
4. **Frontend Technologies:**
 - React JS
5. **Authentication:**
 - Spring Security with OAuth 2.0 and JWT
6. **API Management:**
 - API Gateway (Spring Cloud Gateway)
7. **Message Queue:**
 - Apache Kafka for inter-service communication

Benefits of Microservices Architecture

- **Scalability:** Independent services allow scaling based on demand.
- **Modularity:** Easy maintenance and updates without affecting the entire system.
- **Flexibility:** Use different technologies or databases for each service as needed.
- **Fault Tolerance:** Isolated service failures do not affect the entire application.

Github Link : https://github.com/DhrumilSavla/Personal_Finance_Management

Er Diagram(Abstract)



Normalized ER Diagram

