AI-Driven Personal Finance Management System

Presented by Sukish M, Vaishnavi S, Yashwanth P from Dept. of AI & DS, Rajalakshmi Engineering College.

This project tackles the complexities of managing personal finances with AI-driven automation and insights.

Problem Statement

Challenges in Personal Finance

Diverse incomes and impulsive spending complicate management.

Limitations of Traditional Tools

Manual inputs and limited real-time insights lack personalization.

Need for Intelligent System

Automation and proactive financial support are essential.

Abstract

This system uses ML, NLP, and cloud dashboards.

It tracks expenses, forecasts spending, and offers advice.

It categorizes transactions and detects anomalies.

Real-time alerts improve financial awareness and control.

Introduction

Data Collection

Uses banking APIs and manual entries for comprehensive data.

AI Transaction Analysis

Classifies and forecasts expenses using AI models.

User Interface

Cloud dashboard accessible via web and mobile platforms.

Existing Systems Overview

Mint

- Manual input dependent
- No AI forecasting

YNAB

- Budget focused
- Limited real-time alerts

PocketGuard

- Expense tracking only
- No collaboration features

Limitations in Existing Systems

1   High User Input Dependency

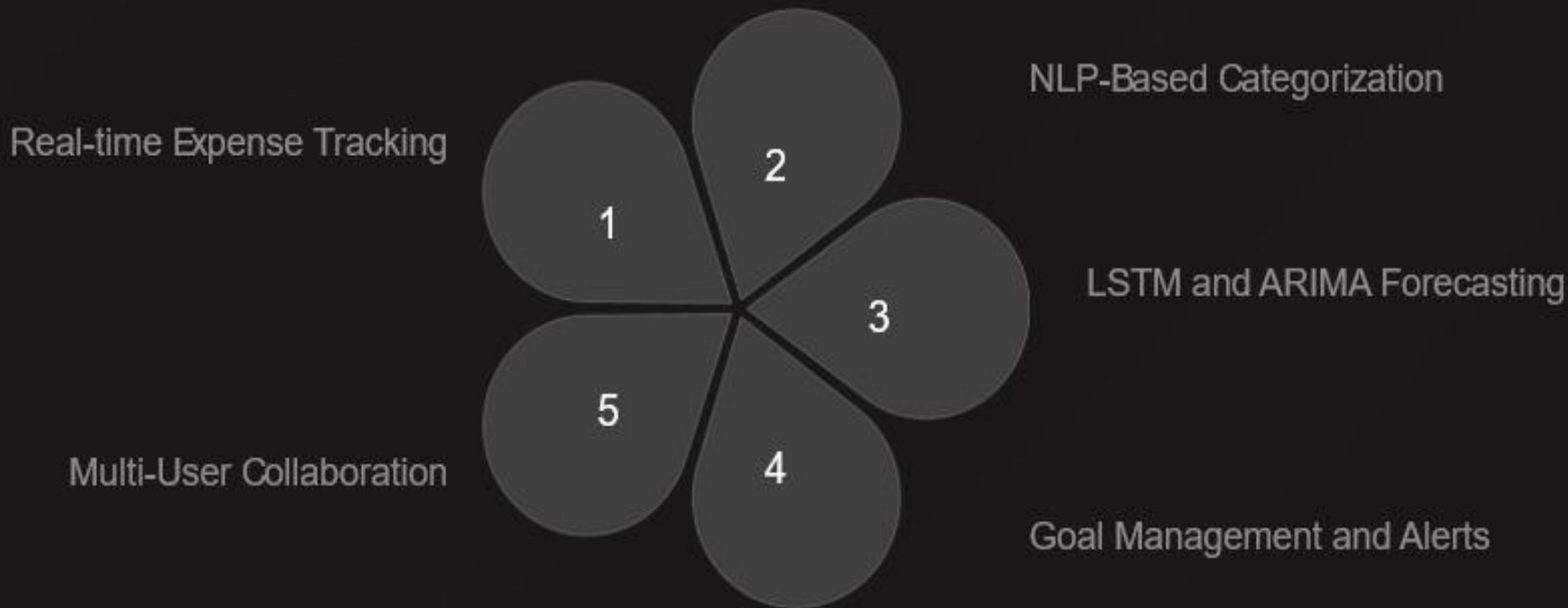2   Minimal AI Personalization

3   Lack of Predictive Analytics

4   Weak Collaboration Tools

5   Insufficient Real-Time Alerts

Proposed AI-Driven System Features

Real-time Expense Tracking

NLP-Based Categorization

LSTM and ARIMA Forecasting

Multi-User Collaboration

Goal Management and Alerts

System Architecture Overview

This architecture includes a user interface, data acquisition modules, AI analysis engines, a notification layer, and a secure database for data integrity and privacy.

AI Techniques Employed

ML for Pattern Recognition

Detects spending trends and anomalies.

NLP for Transaction Categorization

Automatically classifies texts from transactions.

Time Series Forecasting

Uses LSTM and ARIMA models for precise predictions.

Key Takeaways and Next Steps

Enhanced Personal Finance Management

AI automation improves accuracy and user experience.

Real-Time Decision Support

Proactive alerts help avoid overspending.

Future Work

Expand collaborative features and integrate more data sources.