Pre Pay Cafeteria System

Agenda

Introduction

Problem Statement

Refinement Plan for Cafeteria Pre-Pay System

Technology

Proposed System & Its Components

Use Cases Explained

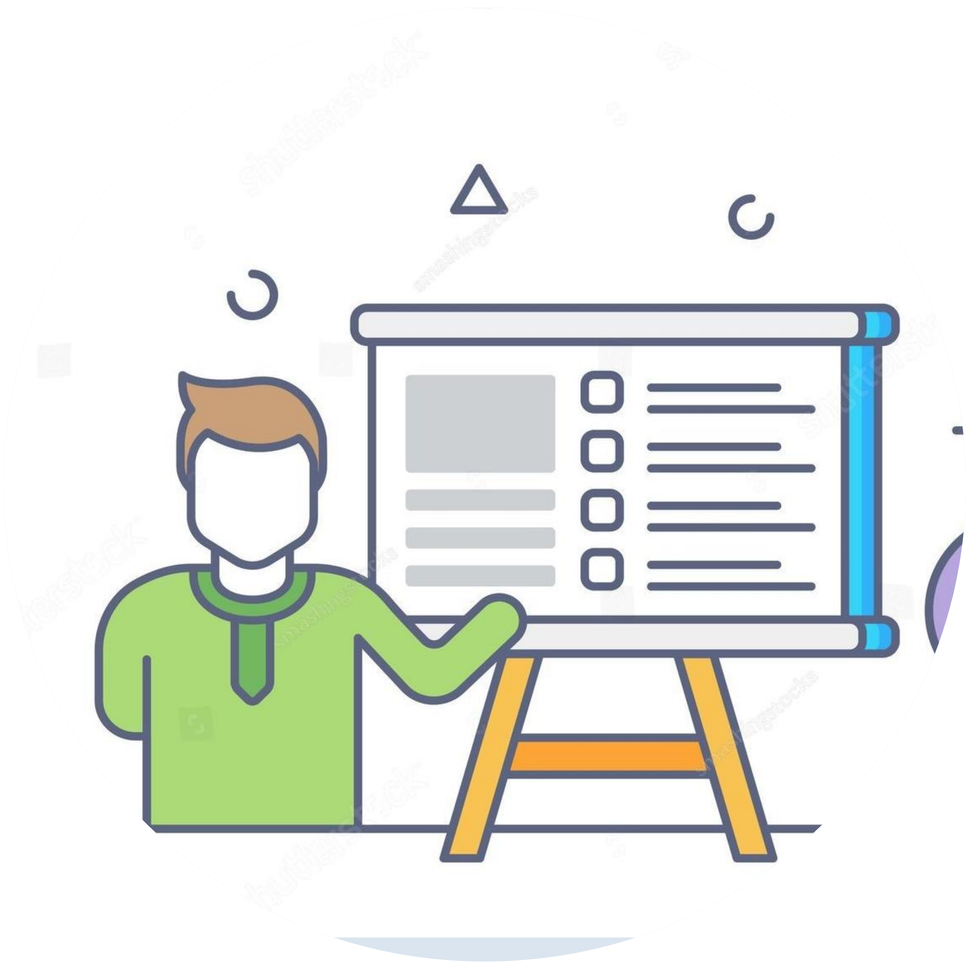
Introduction

The Cafeteria Pre-Pay System is an innovative solution designed to streamline cafeteria transactions for employees and vendors.

Originally developed in 2015, the system provides a convenient and efficient way for employees to manage their cafeteria expenses through an e-wallet mechanism.

the system aims to enhance user experience and operational efficiency within corporate environments.

Problem Statement



Problem Statement

The previous cafeteria management system relies on traditional, non-digital communication methods, leading to several operational challenges:

- **Manual Order Managemen**t: Orders are manually communicated and processed, causing inefficiencies and delays in service.
- **Cash-Based Transactions:** Employees make payments using cash, resulting in longer queues and transactional errors.
- **Communication Inconsistencies:** Miscommunication between employees and vendors often leads to order inaccuracies and dissatisfaction among users.

Problem Statement

- **Limited Transaction Visibility:** Employees lack real-time visibility into their transaction history and account balances, complicating budget management.
- **Congested Order Placement:** Employees gathering in one location to place orders disrupts workplace flow and productivity.
- **Transitioning to a digital solution** is essential to streamline operations, enhance user experience, and improve overall efficiency in cafeteria management.

Refinement Plan for Cafeteria Pre-Pay System

Refinement

Utilizing JavaFX for the frontend to enhance user interface and interaction capabilities, providing a modern and intuitive experience for cafeteria management. Implementing Java Persistence API (JPA) to streamline database operations, simplifying data access and management within the system. **Refactoring Strategy:** Ensuring separation of concerns by making controllers responsible solely for request handling and placing business logic within a service layer to facilitate reusability and maintainability. Implementing global exception handling to centrally manage and process exceptions, ensuring robust error management and graceful degradation. Incorporating new Java features and functionalities to enhance performance, security, and code readability. Adding comprehensive logging to improve system transparency and traceability.

Technology

Advancing System Capabilities
with New Technologies

Technologies Utilized in the Project

Frontend: JavaFX

Enhances user interface and interaction capabilities

Provides a modern and intuitive experience

Backend: Java

Robust programming language for application logic

Ensures scalability and performance

Database: MySQL

Efficient data storage and management

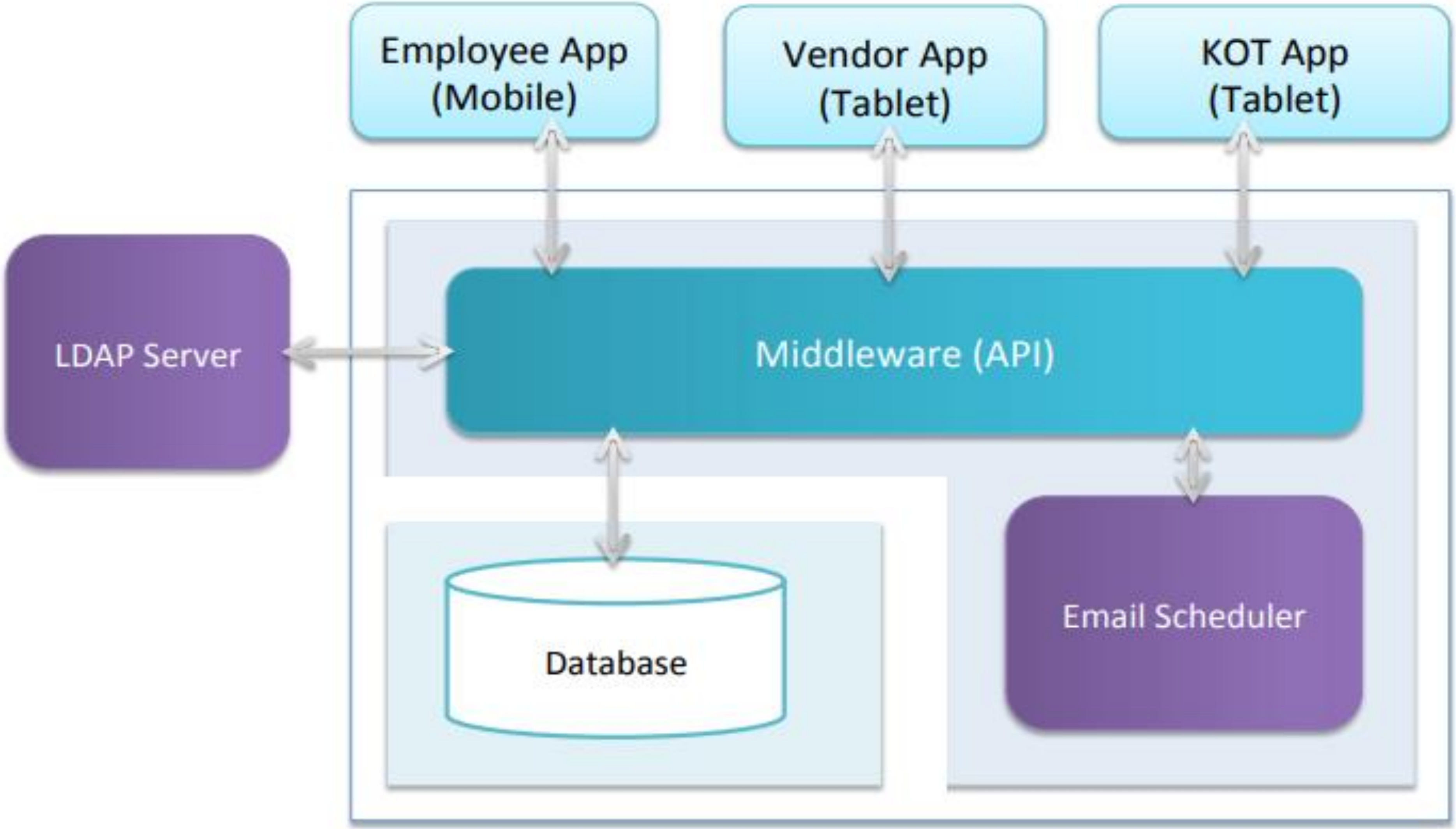
Supports complex queries and transactions

IDE: VS Code

Versatile and powerful development environment

Offers extensive plugins and customization options

Proposed System



Proposed Systems: Explanation

Employee App (Android, iOS, Windows)

- Mobile app for employees to login, view menu, and place orders
- Generates QR code for each successful order

Vendor App (Android)

- Tablet app for vendors to create/edit menu
- Perform top-up and withdrawal transactions

KOT App (Java)

- Desktop application for employees to scan QR code and avail placed orders

Middleware API (Java)

- Data access layer exposing APIs for database operations

Email Scheduler (Java)

- Routine application that calculates and sends vendor-specific transaction reports to configurable recipients

Database (MySQL)

- Data storage for the system

LDAP Server

- Central authentication server

Employee App

- **Platform** – Android, iOS, Mobile
- **Features**

– **Login**

– **Profile**

- Default Location
- My ID
- Change Password

– **My Orders**

- Current + Last 30
- Favorite & Reorder

– **Home Page**

- Available Balance
- Change Location
- Today’s Special
- View Menu
- Add to Cart
- Edit Cart
- Check out
- Mark favorite

Vendor/Admin App

- **Platform – Android Tablet**

- **Admin Features**

– Add/Edit Location (₹, $)

– Add/Edit Vendor

– Add/Edit Users with roles

– Add/Edit Service counter

– Add/Edit Category

– Reports

– Profile

- Change password

- **Vendor Features**

– Add/Edit Menu

– Transactions

- Topup
- Withdrawal

– Dashboard

– Update Available

– Reports

– Profile

- Change password

KOT App

Platform – Java FX

- **Counter Features**

– Scan/Key Order No

– List orders (only counter Specific Items)

– Update Order Status

- In Preparation
- Ready
- Close / Partial close
- Close with refund
- Cancel Order

– Menu-wise count

– Update Available

- **Display Features**

– Todays Special & Top 3

– List ready orders

– Remove closed orders

Use Case Explained

Menu Management

- Vendor logs in and updates the menu.
- Middleware API processes the update.
- Database updates the menu.
- Vendor app displays the result.

Top-Up

- Vendor enters Employee ID and top-up amount.
- Middleware API validates and processes the transaction.
- Database updates the balance.
- Vendor app displays the result.

Employee App

- Employee logs in to view menu, place orders, or check balance.
- Middleware API processes the request.
- Database updates the order status or balance.
- Employee app generates and displays transaction QR code.

Order Delivery Process

- Middleware API and Database update the order status.
- Server marks order as In Preparation.
- Order is displayed on the screen and marked as ready.
- KOT app scans the QR code to fetch order details.
- Order is delivered and closed.

withdrawal

- Vendor fetches employee balance and processes the withdrawal.
- Middleware API and Database update the balance to zero.
- Vendor app displays the result.

Email Notification

- Scheduler fetches transaction data daily.
- Middleware API and Database process the request.
- Scheduler generates and sends transaction reports via email.

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Thank you

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