Case Study - Canteen Ordering System for Unilever

Info about Unilever and their problems:

The Unilever canteen is currently facing significant challenges in managing its operations efficiently. These issues impact both the employees (customers) and the canteen's management. Below is a summary of the current scenario and the pain points:

1. **Inefficient Operations**
    - Manual processes cause delays, long queues, and frequent order errors.
2. **Customer Inconvenience**
    - Long waiting times and lack of order tracking or customization options.
3. **High Workforce Dependency**
    - Over-reliance on staff for repetitive tasks, increasing costs and errors.
4. **Inventory Mismanagement**
    - No tracking system leads to overstocking, shortages, and waste.
5. **Revenue Impact**
    - Declining sales due to dissatisfaction and inability to analyze data for optimization.
6. **Lack of Digital Integration**
    - No digital tools for orders, inventory, or reporting.
7. **Neglected Customer Feedback**
    - No structured mechanism to collect or act on feedback.

The canteen requires a streamlined and efficient system to address its operational inefficiencies, reduce workforce dependency, enhance customer experience, and optimize inventory and revenue management. They are looking for:

1. **A Digital Order Management System**
    - To automate order-taking and reduce processing times.
    - Include features like order tracking and customization options for employees.
2. **Inventory Management Integration**
    - To minimize wastage, avoid shortages, and optimize stock levels.
3. **Customer Feedback Mechanism**
    - To collect and analyze feedback for continuous improvement.
4. **Data Analytics Capabilities**
    - To analyze sales trends and identify popular menu items for better decision-making.
5. **Workforce Optimization Tools**
    - To reduce manual workload and dependency on staff for repetitive tasks.

The solution must ensure efficiency, enhance customer satisfaction, and drive better revenue outcomes.

Problem Definition and Solution

i)Why do we need this canteen system for both the canteen and the customer?

Problem Definition:
The current canteen system lacks efficiency, accuracy, and convenience, which results in long waiting times, order errors, and overall customer dissatisfaction. This decreases revenue and negatively impacts the canteen's reputation. Additionally, the manual system requires a large workforce, which is not only costly but also increases the risk of errors.

Solution:
The canteen ordering system aims to address the problems mentioned above by providing a fast, accurate, and convenient ordering process for both the canteen and the customer. The system will be computerized, making the process more efficient and reducing the need for a large workforce. It will allow customers to place their orders online, either through a website or mobile app, and track the status of their orders in real time. The canteen staff will receive orders on a computer or mobile device, reducing the risk of errors and enabling faster preparation of orders. The system will also generate reports on sales, inventory, and customer feedback, which will help the canteen management to make informed decisions and improve the overall quality of service.

List of stakeholders for the Canteen Ordering System for Unilever:

- Unilever Management Team
- Unilever Employees
- Canteen Manager
- Canteen Staff
- Delivery Boys
- Payroll Department
- IT Department
- Menu Manager
- Food Vendors
- Maintenance Staff
- Human Resources Department
- Customer Service Department
- Quality Control Department

- Finance Department
- Marketing Department

Actors Description:

i)What the employee (customer) using the software should be able to do.

- View the menu and prices of food items available in the canteen
- Select and add items to their order
- Specify any customizations or special requests for their order
- View their order summary, including the total cost of their order
- Place the order and receive an order confirmation
- Track the status of their order, including the estimated time for pickup/delivery.
- View their order history and reorder previously placed orders
- Provide feedback and ratings on the food and service received.

ii)What the canteen manager should be able to do using the new features.

The canteen manager should be able to:

- Manage the menu items, including adding, updating, and deleting items.
- View and manage customer orders, including processing orders and updating their status.
- View and manage inventory levels, including adding and updating stock levels and generating inventory reports.
- View and analyze sales data, including generating sales reports and identifying popular items.
- Manage employee accounts, including creating and deleting accounts, assigning roles, and updating permissions.
- Manage payment methods, including adding and updating payment options such as cash, credit/debit cards, or digital wallets.
- Manage discounts and promotions, including creating and applying discounts, setting promotion rules, and generating reports on their effectiveness.

iii)What the delivery boy should be able to do.

The delivery boy should be able to do the following using the new features:

1. View the list of pending orders assigned to them.
2. Mark an order as picked up from the canteen.
3. View the delivery address and contact details of the customer who placed the order.
4. Navigate to the delivery address using integrated maps or GPS.
5. Mark an order as delivered once they have handed over the food to the customer.
6. View the payment status of the order and collect cash or confirm payment through the app if required.

iv)What the payroll system should enable. Record the actions that can be taken in the payroll system.

The payroll system should enable the following actions:

1. Recording employee attendance and working hours
2. Calculating employee salaries and wages based on attendance and working hours
3. Generating paychecks and payslips for employees
4. Deducting taxes, insurance premiums, and other deductions from employee pay
5. Tracking employee benefits and paid time off
6. Generating reports for management and accounting purposes
7. Updating employee information such as salary, tax status, and personal details
8. Integrating with the company's accounting system for accurate financial reporting.

v)What the final management system must do?

Based on the requirements mentioned so far, the final management system should:

1. Allow customers to place orders, view menus, and make payments easily.
2. Allow canteen managers to manage menus, view orders, and track inventory.
3. Allow delivery boys to view and manage delivery orders.
4. Allow the payroll system to manage employee salaries, taxes, and other related data.
5. Provide reporting and analytics features to track sales, revenue, and other key metrics.
6. Ensure data security and privacy of customer and employee data.

7. Provide a user-friendly interface for all stakeholders involved in the system.
8. Support scalability and flexibility to accommodate future growth and changes in the business.

Advantages and Objectives

Advantages for the canteen:

1. Improved efficiency in ordering and serving food
2. Better inventory management, reducing food waste, and minimizing overstocking
3. Increased customer satisfaction and loyalty due to a more streamlined and convenient ordering process
4. Enhanced data analysis capabilities to make informed decisions about menu offerings and pricing
5. Cost savings from reducing the need for paper-based order forms and manual record-keeping

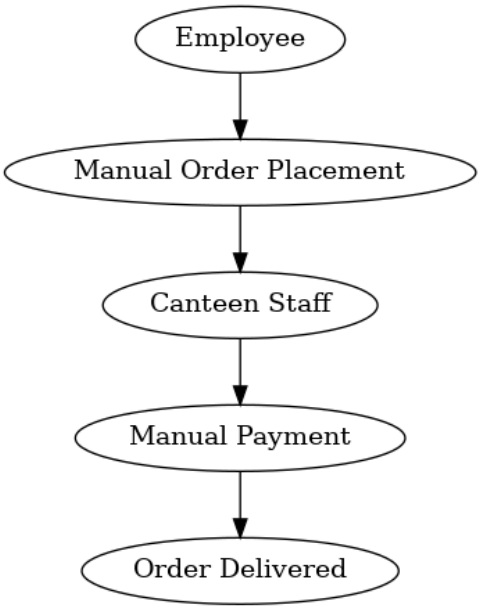
Advantages for employees:

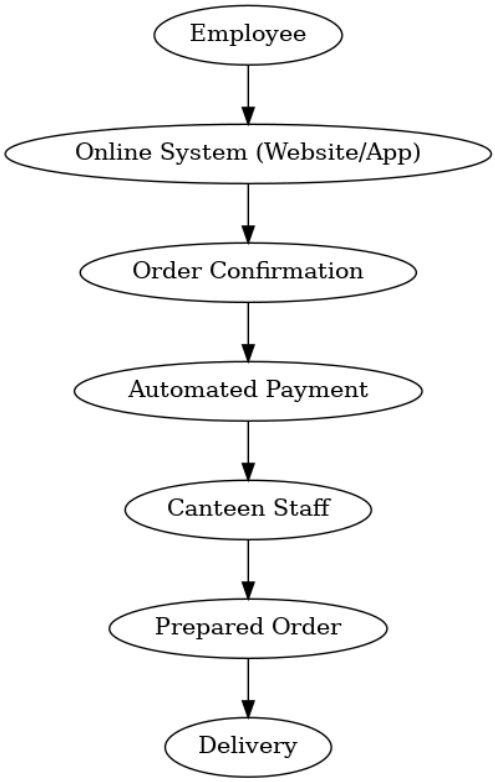
1. Increased convenience and flexibility in ordering food, reducing time spent waiting in line
2. More accurate orders and less room for error in order-taking
3. Ability to view menu items and nutritional information to make informed choices about food
4. Reduced payment handling and cash transactions, improving security and reducing the risk of errors
5. Increased job satisfaction due to a more efficient and organized workplace.

Objectives:

The objectives of the new Canteen Ordering System are to reduce wait times, increase order accuracy, automate the ordering process, streamline operations, provide a better customer experience, and increase revenue.

As in process map and Future map:





In-Scope and Out-of-Scope Items:

In-Scope:

- Menu Creation and Management
- Order Placement and Tracking
- Inventory Management
- Payment Processing
- Reporting and Analytics
- User Management and Authentication

Out-of-Scope:

- Hardware procurement and installation
- Network setup and configuration
- Maintenance and support of hardware and network
- Training of canteen staff

Activity Diagram:

The activity diagram visually represents the workflow of the proposed Canteen Ordering System, showcasing the sequence of activities and interactions between stakeholders. It helps identify the process flow, decision points, and dependencies within the system, ensuring a clear understanding of how the system operates.

[Start] →

↓ (Login/Authentication)

[Employee logs in] →

↓

[View Menu] →

↓

[Select Items] →

↓

[Add to Cart] →

↓

[Proceed to Checkout] →

↓

[Enter Delivery Details] →

↓

[Choose Payment Option] →

↓

[Confirm Order] →

↓

[Order Submitted] →

↓

[Manager Views Orders] →

↓

[Update Order Status] →

↓

[Delivery Boy Picks Order] →

↓

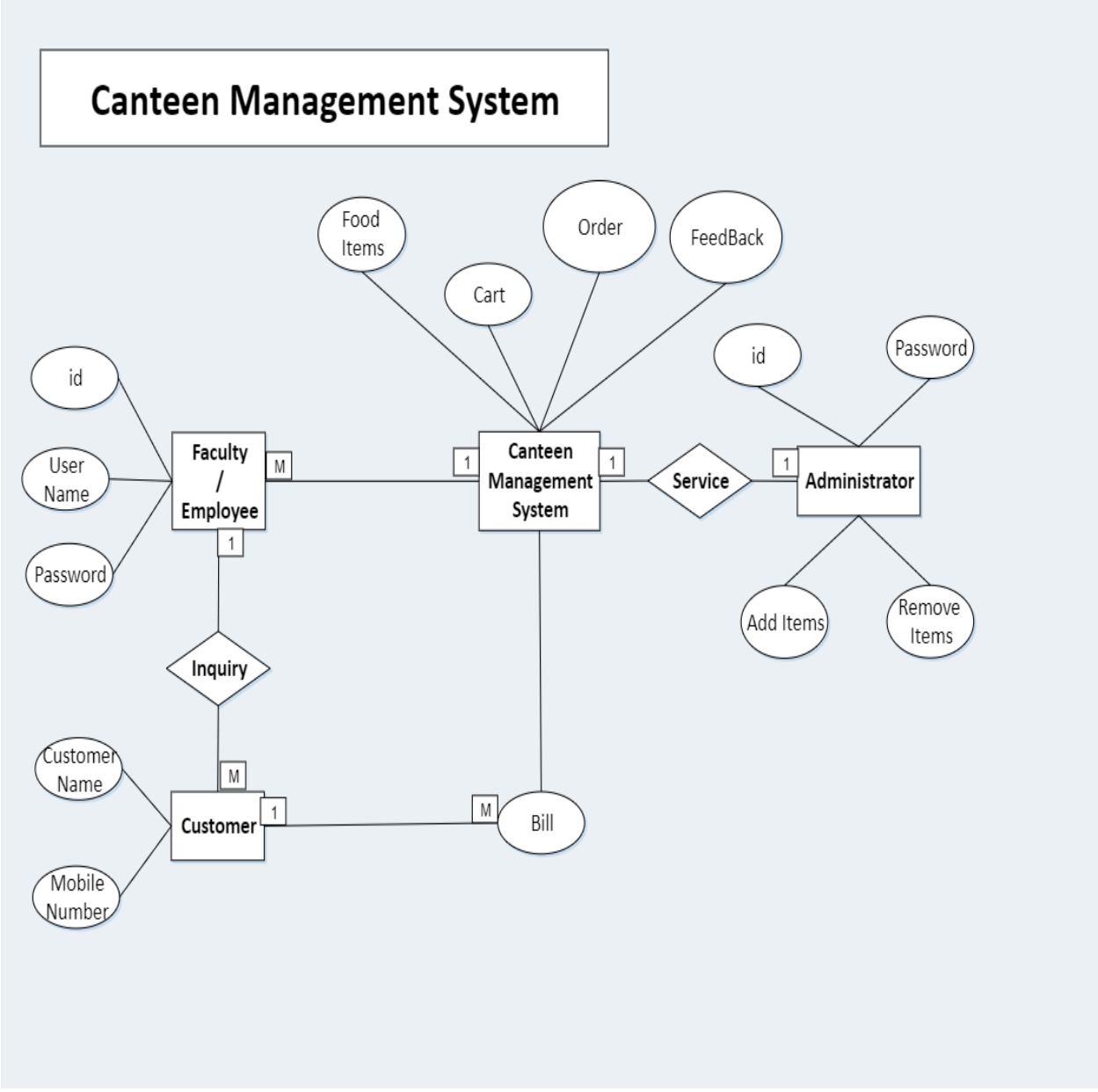
[Deliver to Employee] →

↓

[End]

ER Diagram:

The Entity-Relationship (ER) diagram illustrates the data structure of the proposed Canteen Ordering System, highlighting the key entities, their attributes, and the relationships between them. This diagram provides a comprehensive overview of how data is organized and interconnected within the system.



Business Requirements:

Functional Requirements:

- The system should allow customers to place orders through a user-friendly interface.
- The system should allow canteen staff to manage orders and track inventory
- The system should generate reports on sales, inventory, and customer feedback
- The system should integrate with the existing POS system
- The system should be able to handle a large volume of orders and transactions

Non-functional Requirements:

- The system should be secure and protect customer information
- The system should be reliable and have minimal downtime
- The system should be scalable and able to handle future growth
- The system should be user-friendly and require minimal training
- The system should be compatible with different devices and browsers

Summary of the new canteen order system:

- The proposed Canteen Ordering System allows Unilever employees to order lunch online, which will be delivered to their workstation at a specified time and date.
- The system should have an up-to-date menu for the day, created and updated by a Menu Manager.
- Employees should be able to place lunch orders before 11 am and edit their orders before checking out. Once the order is confirmed, it cannot be canceled or edited.
- The canteen manager should be able to view the orders, take an inventory of dishes ordered, and request delivery to the employees' workstations. A meal deliverer shall deliver the lunch and close the online customer order.
- Employees can submit feedback if they are not happy with any food item or delivery system.

- Payment for the dishes ordered shall be deducted from the employee's salary, handled by the payroll system.
- The system should provide reports on popular dishes, the number of employees using the system, employee satisfaction, daily sales, total monthly earnings, and order forecasting.
- The system should be scalable to handle 1500 employees and have user-friendly screens that are easy to understand.