

## **Project 2 Design of Coffee Shop Transaction System**

### **1. Product Mission Statement**

Design of Coffee Shop Transaction System I chose, this project was inspired by my everyday life. During popular times, such as rush hours and meal times, some coffee shops are overcrowded and people either have to wait in a long line at the counter or at one of the few ordering machines. My objective is to create an effective online ordering system for small coffee shops that enables customers to place orders by scanning a QR code, without the need to interact with a clerk or use an in-store machine. This will differ from large chains like Starbucks, which have their own fully functional app. Customers can enjoy speedier service and shorter wait times thanks to this technology, and merchants can handle orders and inventory more effectively, cut labor expenses, and maximize operational efficiency.

This application primarily benefits ordinary consumers, office workers, students, time-sensitive users, coffee shop attendants, and store managers. Ordinary consumers seek to place orders quickly and conveniently in order to save waiting time. Commuters, students, and time-sensitive users require quick ordering and pickup procedures. Service workers and store managers anticipate that the technology will increase order management efficiency, save costs, answer customer needs faster, and provide data analysis help.

It turns out that the old method of ordering has numerous disadvantages. On the customer side, typical ordering methods might result in significant wait times, particularly during peak hours. Customers desire more flexible payment methods and pick-up times. The disadvantage for retailers is that human ordering is not only inefficient but also prone to errors, particularly during peak hours. Managing inventory and tracking order status is equally difficult. These limitations can be efficiently addressed using this system.

Additionally, this internet ordering platform for local coffee businesses has a special value of its own. With contactless and paperless online ordering, it can improve the consumer experience while cutting down on lines and waiting times. Give retailers access to real-time order management, inventory control, and sales data analysis tools to help them cut labor costs and increase operational efficiency. To increase user loyalty, it also makes it possible to offer a variety of payment options and customized suggestion services.

### **2. Product User Stories**

For the Design of Coffee Shop Transaction System I chose, I profiled the user stories associated with this product.

I am a general consumer, the primary customer of a coffee shop, looking for a convenient and fast service experience. I need to place an order quickly. By scanning the QR code I can quickly browse the menu and place an order, avoiding waiting in line in the store. I need contactless ordering, especially after the epidemic, I tend to reduce contact with the store staff, the cell phones can complete the whole ordering process. I need order tracking and want to check the progress of my order at any time.

I am an office worker, student, and time-sensitive user. I have a tight daily schedule and usually order during weekday mornings or lunchtime. I need to make reservations in advance and would like to be able to choose a time in advance, reserve my coffee, and pick it up at the store at a specific time, saving time in line and waiting. I need a fast pickup to ensure that my order is prepared at the exact time and can be picked up on time to avoid delays.

I am a waiter or manager of a coffee shop and an operator of an ordering system, and I need to efficiently manage orders, inventory, and user data, and optimize operational costs. I need to manage orders and need the system to provide a backend that allows me to monitor order status in real-time and optimize the order-making process. I need the system to be able to automatically update inventory based on orders to avoid out-of-stock or excessive inventory backlog. I need the system to help shopkeepers assign work tasks (e.g. making coffee, processing orders) to ensure efficient team operation.

I am a takeaway delivery driver and I need the system to provide a streamlined process for order pickup for delivery drivers so that I can quickly get and deliver orders. I need to know the status of my orders at all times so that I can pick them up and deliver them to my customers on time.

### **3. Minimum Viable Product(MVP)**

Since the goal of MVP is to realize the core functionality of the product as soon as possible, it needs to focus on the most important requirements in the user story. For a coffee shop's online ordering system, the following features can be the core of MVP:

Ordering via QR code scanning: The first crucial step in a user's interaction with the system is to scan the QR code that is presented in the store to access the ordering interface. Verify that a clear ordering interface can be accessed via the QR code. Menu Navigation and Selection: Offer a user-friendly menu layout that makes it simple for customers to choose the foods and beverages they desire. This section doesn't have to be extremely complicated; it just needs to display the key products. Payment System Integration: In order to guarantee that the user can finish the order and payment, at least one online payment method is integrated; more payment methods may be added later. Order notification: after a user places an order, the system sends an order confirmation and the store receives an order notification. This can be done via a short push or SMS to ensure smooth communication.

When it comes to technological implementation, you should begin with the following.

Front-end development: Create a straightforward ordering interface using front-end frameworks (like React or Vue.js) that users may access by scanning the code. The user interface should be easy to use, straightforward, and clear. Back-end development: construct a basic server to manage user order data. Node.js, Django, and other back-end frameworks can be utilized for managing the delivery and storing of order data. Database: Just the most basic order recording features need to be implemented. User orders, menu information, etc. should be stored in a lightweight database (such as MySQL or MongoDB). Integration of Payments: Incorporate an external payment gateway, like PayPal or Stripe, to guarantee that customers may make online payments for their orders.

With the above information, it was possible to quickly build an MVP of an online ordering system for coffee shops with basic functionality and continuously optimize the system through testing and feedback. The final completion of the customer scanning QR code ordering, selecting drinks and payment, background notification of the store, the store staff to make, and finally waiting for the customer to pick up a complete set of processes.

### **4. User Stories Generated Using Third-party API**

User Analysis for the Design of Coffee Shop Transaction System

When developing a coffee shop transaction system based on QR code scanning for online ordering, understanding the diverse user base is crucial for tailoring the system to meet their needs effectively. Here's a detailed user analysis:

### 1. Demographic Segmentation

- Age Groups: Primarily targets millennials and Gen Z, who are more comfortable with technology and likely to appreciate the convenience of QR code scanning. However, the system should also be accessible to older generations with simplified interfaces.
- Income Levels: While the system should appeal broadly, it may particularly attract mid to high-income individuals who frequent coffee shops regularly and value time-saving solutions.

### 2. Behavioral Segmentation

- Technology Savvy: Users who are familiar with smartphones and apps will likely adopt the system quickly. The design should cater to tech-savvy users with features like order customization and integration with payment apps.
- Convenience Seekers: Customers who prefer quick service, especially those in rush hours or those who view coffee purchasing as a routine rather than an experience.
- Health Conscious: Provide options for users to view nutritional information and customize orders to cater to health-conscious individuals.

### 3. Psychographic Segmentation

- Lifestyle: Users who juggle multiple tasks and value efficiency may use the system more frequently. The design should streamline the ordering process to minimize time spent on the transaction.
- Attitudes towards Coffee: Cater to both casual coffee drinkers and connoisseurs by offering a wide range of customization options, from basic beverages to gourmet options.

### 4. Geographic Segmentation

- Urban Dwellers: Target users living in urban areas who are more likely to visit coffee shops during their daily commute and seek fast service solutions.
- Tourists and Business Travelers: Design the system to be intuitive for non-locals who may not speak the local language but can easily navigate through a standardized QR code scanning system.

### Customer Needs and System Requirements

1. Ease of Use: The interface must be intuitive, with minimal steps required to complete an order.
2. Multi-Language Support: To accommodate tourists and non-native speakers, offering multiple language options can enhance usability.
3. Speed of Service: The system must process orders quickly to reduce waiting times and increase customer satisfaction.
4. Integration with Existing Systems: It should integrate seamlessly with the coffee shop's existing POS and inventory systems for real-time updates.
5. Secure Payment Processing: Ensure that the payment gateway is secure and offers various payment methods (credit/debit cards, mobile wallets, etc.).
6. Order Accuracy: Provide clear options and confirmations to minimize order errors and improve customer experience.

### Impact of User Analysis on System Design

This user analysis impacts the system design by highlighting the need for a flexible, user-friendly, and efficient online ordering system. By understanding the specific characteristics and preferences of different user segments, the design can accommodate a broad spectrum of customers, ensuring the system is inclusive and appealing to all potential users. This approach not only improves user satisfaction but also enhances operational efficiency for the coffee shop.