Restaurant Ordering System

Francis Quang

912679019

VtecFrancis

Checkpoint #	Date Submitted
Checkpoint 1	2/20/2024

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Project Description

- **The motivation**
    - Our restaurant ordering system's motivation is enhancing customer pleasure by taking eating experiences to new levels of convenience and customization. Diners value efficiency and convenience of service just as much as meal quality in today's fast-paced society. The system is made to simplify all aspects of restaurant operations, including food service and table reservations, so that every encounter is smooth, satisfying, and customized to each customer's preferences. With the ability for customers to pre-order their meals, the system combines sophisticated reservation features with the goal of reducing wait times, accurately matching kitchen operations to customer demand, and creating a smooth connection between customer expectations and the restaurant's service delivery. The goal of this simultaneous emphasis on customer-centric features and operational efficiency is to create a devoted clientele, encourage repeat business, and gain a competitive advantage in the fast-paced restaurant industry.
- **High-level Description:**
    - The proposed restaurant ordering system is a creative innovation designed to completely change how restaurants interact with their customers. The opportunity to reserve a table and the choice to pre-order food for dine-in service are the system's two primary features. customers can reserve a table with their choice of date and time guaranteeing they will have a seat waiting for them. customers can choose their meals in advance by a digital menu with food descriptions and photos. The pre-order options will cut down on wait times and guarantee that every dish is served on time. This system intends to speed up operations for the restaurant by giving real-time insights into reservation scheduling and pre-order details. Better staffing levels, efficient kitchen operations, and efficient table management are made possible by this, guaranteeing that resources are employed effectively and that customers enjoy attentive service.

- **High level description of unique features:**
    - **Order ahead of time:** This feature is the same as a pick up however the key difference will be for large parties and can order ahead of time so there will be less wait times and accurate orders in a timely fashion.
    - **Customer loyalty:** The system will offer personalized recommendations to customers based on their previous orders and preferences. customers can be members of our loyalty system making new customers into regulars. They can enter their phone number or email and sign up to earn points for discounts on menu items restaurants offer.
- **At least two existing products that would benefit from using our database**
    - **Lunchbox restaurant management tool:** The main use of lunchbox will benefit customers who are able to order from their table to the kitchen using a digital menu accessed from their devices. customers will use our pre-order feature. customers can also provide special instructions or modifications to menu items. For the restaurant's benefit, they can manage orders, change menu items, and manage guests all in real-time. With so much control this will be a powerful tool that will benefit in our database. This management tool pairs with major point of sale software such as Toast.
    - **Toast point of sale & loyalty program:** Toast offers a software for points that restaurants can customize the promotions. customers will earn points upon ordering from the restaurant and will reward free promotions on birthdays. The loyalty software can only be used with toast's POS. Toast also comes with contactless payments and online ordering.
    - **Opentable:** Opentable will be a great benefit to our database with their easy to use platform that features guest profiles, floor planning, timeline view, shift planning to optimize operations and real-time alerts such as payments by customers.

Functional Database Requirements

1. **Customer**
    - 1.1. Customers shall register with one account with their name
    - 1.2. Customers shall have one phone number associated to their account
    - 1.3. Customers shall have one email associated to their account
    - 1.4. Customers shall update their personal information
    - 1.5. Customers shall place multiple orders at a time
    - 1.6. Customers shall be able to browse the restaurant's menu
    - 1.7. Customers shall be able to rate and review food items
    - 1.8. Customers shall be able to rate and review a restaurant
    - 1.9. Customers shall be able to repeat previous orders
    - 1.10. Customers shall be able to view their order history
    - 1.11. Customers shall track their order
    - 1.12. Customers shall save their favorite food items for a faster checkout
    - 1.13. Customers shall be able to search for food items
    - 1.14. Customers shall be able to pre-order their food for dine-in
    - 1.15. Customers shall be able to pre-order their food for pickup
    - 1.16. Customers shall have at least one payment method
    - 1.17. Customers shall have a pay now or pay in person option
    - 1.18. Customers shall be able reserve one and only one table along with a date, time, and number of guests
    - 1.19. Customers shall be able to view and manage their reserved table
    - 1.20. Customers shall have accessibility requests
    - 1.21. Customers must reserve a table to place a pre-order for dine-in
2. **User**
    - 2.1. A user shall have a first name
    - 2.2. A user can have a middle name
    - 2.3. A user shall have a last name
    - 2.4. A user shall have only one email
    - 2.5. A user shall create a password
    - 2.6. A user shall be able to log in the system
    - 2.7. A user shall be able to log out of the system

3. Servers

3.1. Servers shall log in to the system with their credentials to clock in

3.2. Servers shall log out of the system with their credentials to take a lunch break

3.3. Servers shall log out of the system with their credentials to clock out

3.4. Servers shall receive new orders and any new changes to existing orders in real-time

3.5. Servers shall view and manage their schedules and current shift position

3.6. Servers shall update the status of orders

3.7. Servers shall enter customer orders

3.8. Servers shall manage table reservations based on customer's requests

3.9. Servers shall have access to restaurant's floor plan and view the current status of tables

3.10. Staff shall assign customers to specific tables and manage waiting lists

4. Chef

4.1. Chefs shall log in to the system with their credentials to clock in

4.2. Chefs shall log out of the system with their credentials to take a lunch break

4.3. Chefs shall log out of the system with their credentials to clock out

4.4. Chefs shall receive new orders and updates to existing orders in real-time

4.5. Chefs shall update status orders "in preparation" and "completed"

5. Account

5.1. An account shall be created with one and only one user

5.2. An account can store multiple payment options

5.3. An account can be logged simultaneously on multiple devices

5.4. An account can sign up for the loyalty program

6. Admin

6.1. Admins shall have access to menu items and make modifications

6.2. Admins shall manage table layouts and reservation schedules

6.3. Admins shall manage user accounts

6.4. Admins shall set role permission to accounts

6.5. Admins shall have access to errors by the system

7. Orders

7.1. An order shall contain at least

7.2. An order shall allow special instructions for customers

7.3. An order shall be linked to a customer's account

7.4. An order shall have different status from ordered to completion

8. Loyalty program

8.1. Loyal customers shall redeem points for discounts on eligible food items after ordering or payment

8.2. Loyal customers shall receive a free menu item on their birthday

8.3. Loyal customers shall redeem points via email or phone number

9. Menu

9.1. Menu shall display menu items

9.2. Menu shall create special menu items based on special occasions, holiday, events, or promotions

9.3. Menu shall allow staff add menu categories

9.4. Menu allow staff to delete menu categories

9.5. Menu shall staff to update menu categories

10. Menu item

10.1. Menu items shall provide name of item

10.2. Menu items shall provide detailed description

10.3. Menu items shall provide prices

10.4. Menu items shall provide allergen information

10.5. Menu items shall provide images of the food

10.6. Menu items shall have customization options of food

10.7. Menu items shall have additional items to the dish

10.8. Menu items shall be organized by only one group

11. Reservation

11.1. Booking shall be for reserving tables

11.2. Booking shall provide customer’s first name, middle name, and last name

11.3. Booking shall provide customer’s email

11.4. Booking shall provide customer’s phone number

11.5. Booking shall have a created time of reservation

11.6. Booking shall have a created date of reservation

11.7. Booking shall provide updates of reservations

11.8. Booking shall have number of guests in the reservation

11.9. Booking shall provide customers a number in line if tables are full

12. Tables

12.1. Tables shall allow customers to make reservations specifying date, time, and number of guests

12.2. Tables shall be associated with one customer

12.3. Tables shall allow customers to make special requests

12.4. Tables shall send reservation confirmation to customers via email or SMS

12.5. Tables shall display real-time status for servers

12.6. Tables shall allow staffs to make modifications based on customer's request

12.7. Tables shall assign a waitlist to customers if reservations are fully booked

12.8. Tables shall allow customers to choose a special occasion request

13. Payment transaction

13.1. Payments transactions shall support multiple payment methods

13.2. Payment transaction shall allow customers to pick pay inside option

13.3. Payment transaction shall provide receipts for customers that completed a transaction

13.4. Payment transaction shall allow customers to split the bill

13.5. Payment transaction shall allow customers to add a tip

13.6. Payment transaction shall display the total bill with tip amount

13.7. Payment transaction shall calculate taxes

13.8. Payment transaction shall apply discounts or promotion offers to loyal customers

13.9. Payment transaction shall display a final discounted price and original price after applying a discount

13.10. Payment transaction shall generate total amount after closing

13.11. Payment transaction shall generate total tip amount after closing

13.12. Payment transaction shall record each items ordered with price

13.13. Payment transaction shall allow servers to issue a refund

13.14. Payment transaction shall allow servers to adjust charges

13.15. Payment transaction shall record all charge adjustments

14. Recipe

14.1. Recipe system shall allow staff to view recipes

14.2. Recipe system shall allow staff to manage recipes

14.3. Recipes shall be linked with inventory items

14.4. Recipe system shall alert chefs if inventory levels are low

14.5. Recipe system shall calculate cost of ingredients based on the dish

15. Inventory

15.1. Inventory items shall be organized by only one group

15.2. Inventory shall alert low stock on items

15.3. Inventory shall record supply quantity

15.4. Inventory shall record supply cost

15.5. Inventory shall record delivery date

15.6. Inventory shall record date of ordered supplies

16. Feedback

16.1. Customers shall be able to rate restaurant cleanliness

16.2. Customers shall be able to rate service of staff

16.3. Customers shall be able to rate food quality

16.4. Staff shall be able to view their ratings

16.5. Staffs shall respond to customer feedback

Non-functional Database Requirements

1. **Security**
   - 1.1. Servers, admins, and chefs shall login with a unique username and password to access employee systems
   - 1.2. Customers shall login with a unique username and password to access table reservations and ordering from the menu
   - 1.3. Users must have a minimum length of 8 characters that include alphabets and numbers
   - 1.4. Sensitive data shall be encrypted into the database system
   - 1.5. Payments shall have a secure transaction
   - 1.6. Payment transactions shall be recorded
2. **Usability**
   - 2.1. The database system shall be easy to use for customers to navigate to menus
   - 2.2. The database systems shall be easy for servers and chefs to navigate to their current position and schedule
   - 2.3. The database system shall have multilingual support
3. **Performance**
   - 3.1. The database system shall have page menu loading times under 2 seconds
   - 3.2. The database system shall receive order submissions under 1 second
   - 3.3. The database system shall support high number of users simultaneously
4. **Reliability**
   - 4.1. Payments shall have a reliable transaction
   - 4.2. The database system shall be available during open hours
   - 4.3. The database system shall ensure menu prices and order information
   - 4.4. The database system shall conduct regular backups
   - 4.5. The database system shall alert admins to handle errors
   - 4.6. The database system shall apply updates without disrupting the service
5. **Privacy**
   - 5.1. Privacy of customers shall collect only necessary data for ordering and managing customer’s accounts
   - 5.2. The system shall state users the type of data that will be collected and the reason for collecting data