Requirements Document

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Requirements Document for the MOM & POPS PIZZA Project

# Requirements Definition

**Project:** “Mom and Pop” pizza order and delivery system.

**Aim:**

Our goal is to develop a functional, user friendly, pizza ordering system for MOM & POPS PIZZA. This project includes customizing features for ordering pizzas, drinks and sides. There are several types of payment and logistic methods to suit the client needs. This software needs to provide MOM & POPS PIZZA with a way for the cashiers of the restaurant to take client orders and let the manager see important aspects.

**Functional Requirements:**

* Customers are able to create an account for the software.
* Registered customer can edit their personal and billing information and change and recover password.
* Customers are able to login as registered users and as guest users for those who don’t have an account
* A cashier is able to login as guest to take orders from clients calling the restaurant to order.
* Manager can login, edit prices of size and toppings, and drinks and sides. Manager can also generate reports of daily, monthly transactions.
* Customers are able to fully customize the size, crusts, and toppings of the pizza.
* The price is based on the size of the pizza and the extra toppings. The application shows a detailed menu with the following pricing rules:
* Sizes: Small ($4), Medium ($6), Large ($8), Extra-large ($10).
* Crusts: Thin, Regular, Pan.
* First topping free. Prices for additional toppings:
* For a Small pizza: $0.50 per extra topping.
* For a Medium pizza: $0.75 per extra topping.
* For a Large pizza: $1.00 per extra topping.
* For an Extra-large pizza: $1.25 per extra topping.
* After ordering pizza, customer can choose to go to the drinks and sides screen or go directly to the order confirmation screen. If customer goes to drinks and sides order interface, the system will show the price of sides and drinks, and they will be able to select everything they want.
* Drinks (pepsi) small, medium, and large all 1$
* Garlic Bread sticks – 2$
* Bread sticks bites -2$
* Big chocolate chip cookie -4$
* When finishing all customization of pizzas, drinks or sides, the customer will be able to review their order in the account confirmation screen. There they will select the payment method and the logistics of the order (Delivery or Pickup). There’s no dining at the restaurant. The system must have three different payment methods: Cash, Card, and Check.
* Finally, when confirming the order, the software will register the transaction information in the database and print a receipt of the order.

**Non-Functional Requirements:**

* Only manager can edit price of the goods and generate reports of transactions.
* Only the customer can edit his/her account information and order details.
* It is better to maintain the system once a week, the maintenance time is non-business time, and the maintenance time should not exceed 2 hours.
* This application should be focused on being a desktop app. Possible compatibility with tablets may be needed.
* When users operate the application, the response time of the program should be as short as possible, preferably not more than two seconds.
* The software’s interface should provide the users with useful shortcuts to improve the task finishing time.
* Software must be reliable and have a 98% error proof probability.
* Any crashes in the application should be fixed by the support or maintainability personnel in a short time frame.
* Include help dialogs to help customers to better understand the interface and speed up task finishing time.
* The application size should not exceed 150MB.The lower the size the better.
* The program needs to do data backups to prevent the loss of user data in the database.

Class Diagram

A close up of text on a white surface

Description automatically generated

Use Case Diagram

A close up of a map

Description automatically generatedA close up of a map

Description automatically generated

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Description automatically generated

Class Documentation

**Item-** This class defines item attributes.

Properties:

itemID: int

itemName: string

itemType: string

itemPrice: float

Methods:

getInfo() – returns values of item properties

**Cart –** This class facilitates the addition and removal of various items from the menu.

Properties:

-itemID: int

-itemQuantity: int

Methods:

-addItem() -adds item to cart

-removeItem() -removes item from cart

-checkout()-processes card information

**Order-** This class contains the necessary customer and order information to facilitate the ordering system.

Properties:

-orderId: int

-dateCreated: string

-customerName: string

-status: string

-customerPhone: string

Methods:

-placeOrder()-places users order

-requestInfo()- gets orderID(,dateCreated(,customerName,status and

customerPhone values.

**Customer -** This class defines several user specific attributes to keep track of returning customers.

Properties:

-phoneNumber: string

-cardholderName: string

-expirationDate: string

-securityCode: string

-typeofCard: string

-address: string

Methods:

-register() -creates a new account

-updateInfo() -updates account information

-recoverPassword() – recovers password

-changePassword()- allows user to change their password

**Logistics –** This class handles order deliver and payment methods.

Properties:

orderId: int

orderLogistics: string

paymentMethod: string

address: string

Methods

updateLogistics() – sets address,paymentMethod, orderLogistics and orderID values.

**orderDetails-** This class defines several attributes used to identify and categorize orders.

Properties

orderId: int

itemId: int

itemName: string

itemQuantity: int

price: float

subtotal: float

Methods

calculatePrice() – calculates total order price

**User-** This class defines several user specific attributes to facilitate the login of returning customers.

Properties:

Name: string

Password: string

loginStatus: string

Methods:

verifyLogin(): bool -if true grant access to account if false try again

login() -logs in a returning user

logout() -logs out a returning user

**Guest –** This class is used to process a non-registered user.

Properties:

Name: string

Methods:

Login() – logs in a guest user

Logout()- logs out a guest user

**Manager –** This class contains several utilities required for management use.

Properties:

Username: string

Methods:

updateS&Tprices() -updates size and topping prices

updateD&Sprices() – updates drinks and sides prices

generateReport() – generates a report

**Menu –** This class purpose is to display food options and their corresponding prices.

Properties:

prices: array

addtocartNumber: int

Methods:

getPrices() – returns the array of prices

**Basics –** This class contains the building blocks of the product.

Properties:

crusts: array

sizes: array

sPrices: array

Methods:

getBasics() – gets the crusts, sizes and sPrices

**Toppings-** This class defines the add-on available in addition to the base product.

Properties:

meats: array

nonMeats: array

Methods:

getToppings() – gets the array of toppings values

**Drinks –** This class defines the drinks available along with their corresponding prices.

Properties:

drinks: array

dPrices: array

Methods:

getDrinks() -gets the array of drink values

**Sides –** This class defines the possible side available as well as pricing information.

Properties:

sides: array

sdPrices: array

Methods:

getSides() -gets the array of sides values

Use Case Flow of Events

**Description**

This use case flow of events describes what happens when a user wants to order a pizza online through Mom & Pop’s Pizza Restaurant. It describes the actions that occur with the normal sequence of processing (no errors) and the alternative/exceptional sequence that occur if there are errors. The managers of the restaurant will be able to go into the system and change menu prices and generate reports of any transaction. Registered customers can sign into their profiles and order a personalized pizza, sides, or drinks. Then once they are done with their order, they can check out in our virtual cart and pay for their order. Once everything is payed for, they will be sent a receipt and their pizza will be delivered to them shortly. Guest customers will be able to do the same thing but have to give information like their name, address, phone number, etc..

**Actors**

* Managers: Users who work for or own Mom & Pop’s Pizza Restaurant they decide the price changes, and can generate reports of any transaction.
* Customers: Users who order pizza, pay for order and then have it sent to them.

**1.0 Flow of Events for Managers Use Case**

1.1 Preconditions

Managers must create a profile with the help of the development team before they can make changes to the system. They must create a username and password for their profile.

1.2 Main Flow

The use case begins when the manager logins onto the registration system and enters his/her username and password. The system verifies that the username and password is valid (A-1) and the managers presses the login button and is presented with the Manager Logged-In Menu page (Sizes & Toppings). The system prompts the manager if they want to edit the prices of the menu items available for purchase. They can edit the price of the size of the pizza, which is small, medium, large, and extra-large (S-1). They can also edit the prices of the toppings for each size of pizza (S-2). Once the manager decides on their prices, they can save them using the green save button. If the manager wants to change the prices of the sides and drinks the simply click on the sides & drinks button which will take them to the that corresponding page where they can change the menu prices of the small, medium, and large drinks (S-3) and the bread sticks, bread bites, and cookies(S-4). When the manager is satisfied with their changes, they can save them using the green save button. Finally, on the right-hand side of the page the manager can generate reports for any transactions they want to see. They can generate reports for all transactions (S-5), today’s transactions (S-6), monthly transactions(S-7), and registered clients transactions(S-8). They can select any of those four options and then they press the green generate button and a report will pop up for them on the screen. Once the manager is done he can logoff by using the logout button.

1.3 Subflows (if applicable)

S-1: Edit prices of “Sizes” of pizza

The system displays the different sizes of pizza the customer can order small, medium, large, and extra-large. Next to the names of the sizes is a field box were the manager can set the dollar amount they want to charge for each size of pizza for example a small is $4.00 but they can change it to $5.00. Managers can not input negative numbers they will receive an error message (A-2).

S-2: Edit prices of “Extra Toppings” of pizza

The systems displays how much extra toppings for each size of pizza will cost. Next to the names of the sizes are field boxes were the manager can change the dollar amount for the extra toppings, going from $0.50 cents for small toppings to $0.75 cents as an example. Managers can not input negative numbers the system won’t allow them to for safe measure (A-3).

S-3: Edit prices of “Drinks”

After clicking on the button “Sides & Drinks” the systems displays the drinks which have three sizes small, medium, and large. Next to the names of the sizes are field boxes were the manager can edit the dollar amount of the drinks. Going from let’s say $1.00 to $2.00 for a small drink. Managers can not input negative numbers the system won’t allow it. (A-4).

S-4: Edit prices of “Sides”

The system displays the different side orders that customers can purchase like bread sticks, bread bites, and cookies. Next to the name of each of the sides is a field box were the manager can change the dollar amount the restaurant charges for their side items. Negative numbers cannot be entered the in the fields (A-5).

S-5: Generate report for “All transactions”

If the user looks to the right-hand side of the page the system shows the generate reports feature were the managers can select 4 options of reports to generate. The first option being “All transactions” which displays all the transactions for Mom & Pop’s restaurant (from a database) in a report. Once generated the use case can continue.

S-6: Generate report for “Today’s transactions”

Managers chooses “Today’s transactions” as one of the four options. Which will allow the manager to generate a report of the restaurant’s workday transactions.

S-7: Generate report for “Monthly transactions”

If the manager choses this option, they will see the transactions of the restaurant by a monthly basis.

S-8: Generate report for “Registered Customers”

If the manager choses this option a report of all the registered customers in the system will be generated. Customers who have profiles in the system, their data will be seen by the managers.

1.4 Alternative Flows

A-1: An invalid username and password is entered. They systems displays a login error message. User is asked to verify name and password. The user can re-enter username and password or terminate the use case.

A-2: An invalid dollar amount is entered (for example a negative number). The user can re-enter a valid dollar amount or terminate the use case.

A-3: An invalid dollar amount is entered. The user can re-enter a valid dollar amount or terminate the use case.

A-4: An invalid dollar amount is entered. The user can re-enter a valid dollar amount or terminate the use case.

A-5: An invalid dollar amount is entered. The user can re-enter a valid dollar amount or terminate the use case.

**2.0 Flow of Events for Customers Use Case**

2.1 Preconditions

Customers can sign up and make their own accounts in the system which allows them to save pizza orders and saves their billing, address, and phone information for faster checkout. Guest customers will have to have their name, address, phone and billing information ready to input into the system in order to start ordering pizzas.

2.2 Main Flow

The use case begins when a customer logs on to the registration system which shows a sign-in prompt for registered customers asking for their phone number and password. The system verifies that the password is valid (A-1). It also shows a blue button for guests to login and start their order delivery process. There is a “forgot password” link that allows the customer to recover their password if they forgot it for their account. Then, there is a register for an account link that allows new customers to sign up for Mom & Pop’s Pizza Restaurant.

If the activity selected is login for registered customer, the S-1: registered customer login subflow begins.

If the activity selected is guest login, the S-2: guest login subflow begins.

If the activity selected is “forgot password, recover?”, the S-3: recover password subflow begins.

If the activity selected is “Don’t have an account? Register.”, the S-4: register an account subflow has begun.

2.3 Subflows

S-1: Registered Customer Login

Once the customer inputs their phone number and password the “Customer Logged-In Menu” pops up and from there the systems prompts the user to create a pizza order. From there the “Pizza Customization” page appears, and the user can choose how many pizzas they want, the type of crust, the size of the pizza and the toppings. Once the user is satisfied with their order they can continue to the next page and the system will prompt them if want any sides or drinks with their order. If they say yes it will take them to the “Drinks and Sides” page, if they say no it continues to the order confirmation page. Once their drinks and sides have been selected the systems continues to the order conformation page were the customer is prompted to choose Delivery or Pickup and the payment method cash, card, and pay by check. Once those things have been selected the system will prompt the user if the current payment method and address are correct. If yes, the final prompt will appear confirming that the payment was successful, and your order is out for delivery. If no (A-2) the user can go back and make any necessary changes.

S-2: Guest Customer Login

The system will display the Customer login menu were the user can order a pizza without having to sign up for an account. Once they click on guest it takes them to the “Pizza Customization” page, from there they can order how many pizzas they want, the size, crust, and toppings. Then once they have selected their pizza the system will prompt the user if they want any drinks or sides. If yes it will take them to the “Drinks and Sides” page and from there after the user has selected their drinks and sides, they go to the customer guest order confirmation page. If no, they go straight to the confirmation page. Once there the user will be prompted to input in their name, phone number, address, and billing information. They need to fill in this information in order to continue and once they have done the user can pay for the order. Once payed for, a prompt will show up telling the customer thank you for your payment your order will be out for delivery soon. Then the user can exit out of the program and the use case ends (A-3).

S-3: Recover Password

The system will display the customer login menu and if you are a registered customer who forgot their password then click the blue hyperlinked named Recover. The system will display the customer password recovery page where it will prompt the user to enter their phone number associated with their account and then the system will send a code to that phone number. Then the user will receive the code in a text and then they will enter that code in the field box and press continue (A-4). The second prompt will appear that asks for the user to enter a new password and then to re-enter that new password. One that is done the user can save the password and new prompt will appear that says saved successfully. Then the user can continue with the use case.

S-4: Register Account

The system will display the customer login menu and if there is a new customer who wants to make an account, they can click on the blue hyperlink that says Register. When the customer clicks on the hyperlink they go to customer registration page where they can begin making their account. The system asks for the users personal information like their name, phone number, address, and billing information. Once all those field boxes are filled out the user can press the green register button and as soon as they do that a registered correctly window will appear letting the user know the have registered correctly and the user can continue the use case after that.

2.4 Alternative Flows

A-1: An invalid phone number and password is entered. They systems displays a login error message. User is asked to verify phone number and password. The user can re-enter phone number and password or terminate the use case.

A-2: If the user changes his/her mind about an order or there is something wrong with that order they can go back and edit the order and use case begins again.

A-3: The final prompt will appear, and the use case will terminate.

A-4: If code was not sent to phone try another send code request until the use case continues.

Entity Relationship Diagram

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Description automatically generated

Decision Tables



















