Program Goals and Functionality

The Pizza Delivery System is designed to make ordering pizza simple and convenient for customers while helping the restaurant manage orders efficiently. The program walks users through choosing their pizza size, toppings, and delivery time, then calculates the total cost and saves everything to a file. It's meant for anyone who wants to order pizza without having to call or visit the restaurant in person.

The main features include selecting from different pizza sizes like small, medium, or large, adding toppings such as pepperoni, mushrooms, or olives, choosing a delivery time that works for the customer, seeing the total price before confirming, and getting a confirmation with all the order details. This makes the whole ordering process faster and less confusing than traditional methods.

Target Audience

This program is primarily for regular customers who want a quick way to place orders from home. It's also useful for the restaurant staff who need to keep track of orders and delivery schedules. Since the interface is straightforward, even people who aren't very tech-savvy should be able to use it without any problems.

Strengths

One of the biggest strengths is how easy it is to use. Customers don't need any special training to figure out how to order their pizza. The program also cuts down on mistakes that might happen when taking orders over the phone, since customers can see exactly what they're ordering before they confirm. Another advantage is that all orders are automatically saved to a file, which makes it easier for the restaurant to keep records and track what's being ordered.

The program is also pretty flexible. If the restaurant wants to add new toppings or change prices, it's not too difficult to update the code. Plus, having everything organized into different classes and methods makes the program easier to maintain and debug if something goes wrong.

Weaknesses

There are definitely some areas that could be better. Right now, the program doesn't connect to a real payment system, so customers can't actually pay through the app. It also doesn't have a way to track orders in real-time, which means customers can't see where their pizza is or when it will arrive. The appointment system is pretty basic too - it just lets you pick a time without checking if the restaurant is actually available or if they're already handling too many orders.

Another limitation is that there's no customer account system. This means the program doesn't remember your previous orders or save your address for next time, which would make reordering much faster. The interface could also use some work to make it look more modern and appealing.

Future Improvements

Looking ahead, there are several ways this program could be enhanced. Adding a real payment processing system would be the most important upgrade, letting customers pay with credit cards or digital wallets right through the app. Implementing a database instead of just text files would make it possible to store more information and retrieve it faster.

Creating customer accounts would be a huge improvement because people could save their favorite orders, delivery addresses, and payment information. A real-time order tracking feature would let customers see exactly where their pizza is and how long until it arrives. The restaurant could also benefit from an admin panel where they can manage the menu, update prices, and view all incoming orders in one place.

Making the user interface more visual with better graphics and maybe even pictures of the pizzas would make the program more appealing. Integration with mapping services could help optimize delivery routes and give more accurate delivery time estimates. Eventually, adding features like loyalty points, special deals, and the ability to schedule orders in advance would make the program even more useful for both customers and the restaurant.

Pseudocode

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Start Pizza Delivery System

1. When the program starts, show a welcome message to the customer saying "Welcome to Pizza Paradise" and explain that we'll help them place an order.

2. Ask the customer to provide their basic information:
   - Get their full name and store it
   - Get their phone number for delivery contact
   - Get their complete delivery address including street, city, and zip code

3. Start building the order by initializing a running total that starts at zero dollars.

4. Show the customer the available pizza sizes with prices and ask them to choose one:
   - Small pizza costs eight dollars and ninety-nine cents
   - Medium pizza costs eleven dollars and ninety-nine cents
   - Large pizza costs fourteen dollars and ninety-nine cents
   - Based on what number they pick, remember which size they want and add that base price to their total

5. Now let the customer add toppings to their pizza:
   - Create a list of available toppings like pepperoni, mushrooms, olives, sausage, and onions
   - Each topping costs one dollar and fifty cents
   - Keep showing them the topping options and let them keep adding toppings one at a time
   - After each topping they select, add it to their order and increase the price
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  - Keep doing this until they say they're done adding toppings

6. Calculate the final price:
   - Take the current total and multiply it by the tax rate of eight point two five percent
   - Add the tax amount to the subtotal to get the final total the customer needs to pay

7. Ask the customer when they want their pizza delivered:
   - Give them the option for immediate delivery which takes thirty to forty-five minutes
   - Or let them schedule a specific time for later
   - If they choose to schedule, ask them what time they prefer
   - Check if that time is during business hours between eleven in the morning and ten at night
   - If the time they picked is outside business hours, default back to immediate delivery

8. Display everything back to the customer so they can review their order:
   - Show their name, phone number, and delivery address
   - Show what size pizza they ordered
   - List all the toppings they selected
   - Show the subtotal before tax
   - Show the tax amount
   - Show the final total price
   - Show when the pizza will be delivered

9. Ask the customer to confirm if everything looks correct:
   - If they say yes, save all the order information to a text file with their name
   - The file should include all their contact info, order details, prices, and delivery time
   - Thank them for their order and let them know it's been confirmed
   - If they say no, cancel the order and let them know it wasn't processed

10. End the program.

Key Operations Included

- Conditional branching happens when checking delivery times and validating customer input
- Input collection occurs throughout for customer info, menu selections, and confirmations
- Output displays at every step to guide the user and show order summary
- Menu selection uses a switch-like structure for choosing pizza sizes
- Loops are used for the topping selection process and displaying available options
- Arrays store the list of available toppings and the toppings the customer selected
- Arithmetic operations calculate subtotals, tax, and final totals
- Logical operations validate times and check user confirmations
- File writing saves the complete order information for restaurant records