Food Delivery Queue System Simulation

A technical exploration of queue implementation for food delivery efficiency in C.

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Introduction to Food Delivery Systems

Popular Platforms

Swiggy, Zomato, and others connect restaurants with customers.

Queue Simulation

Models order placement, processing, and delivery timing.

Optimization Importance

Faster deliveries enhance customer satisfaction and operational efficiency.

Objectives of the Simulation

Simulate Food Delivery Queue

Replicate real-time queue

behavior for orders.

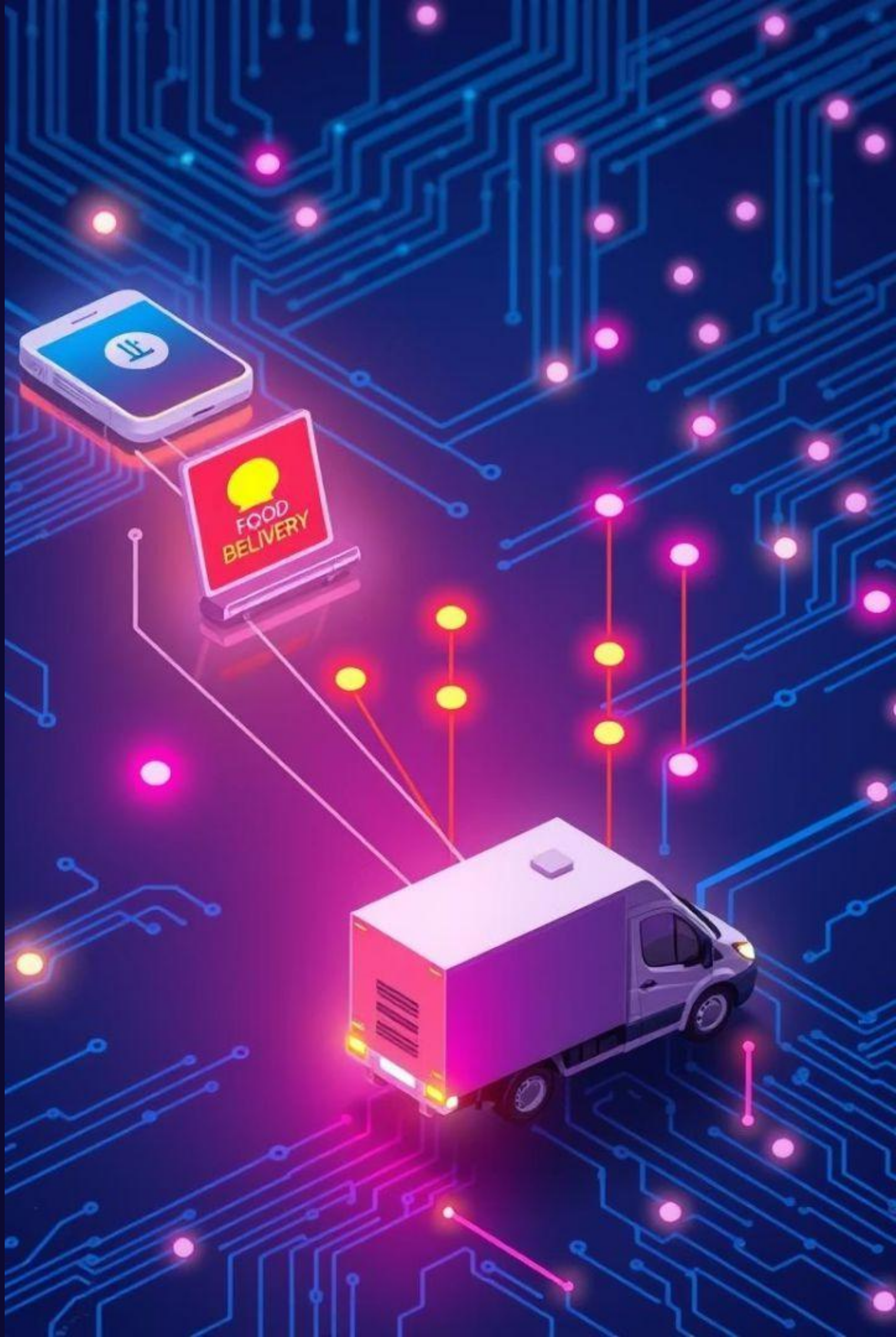
Optimize Wait Times

Minimize delays and

improve delivery efficiency.

Demonstrate Queue Utility

Showcase queues as a core data structure in real systems.



Why Use C and Data Structures?

Advantages of C

- High performance and efficiency
- Precise memory control for simulation

Role of Data Structures

- Queues provide FIFO order processing
- Essential for managing live order flow

Queue Algorithm Overview

1. Initialize queue with maximum size.
2. Customer places order (enqueue).
3. Delivery agent processes order (dequeue).
4. Monitor queue status: wait and delivery times.
5. Handle overloads and system delays.

Lessons Learned

Queue Manaąement

Crucial for smooth

real-time order processing.

Simulatiną Real Systems

Shows how C can mimic

live application behavior.

Memory vs Processiną

Balance needed between memory usage and speed.

Visualizing Food Delivery Queues

Delivery Bikes

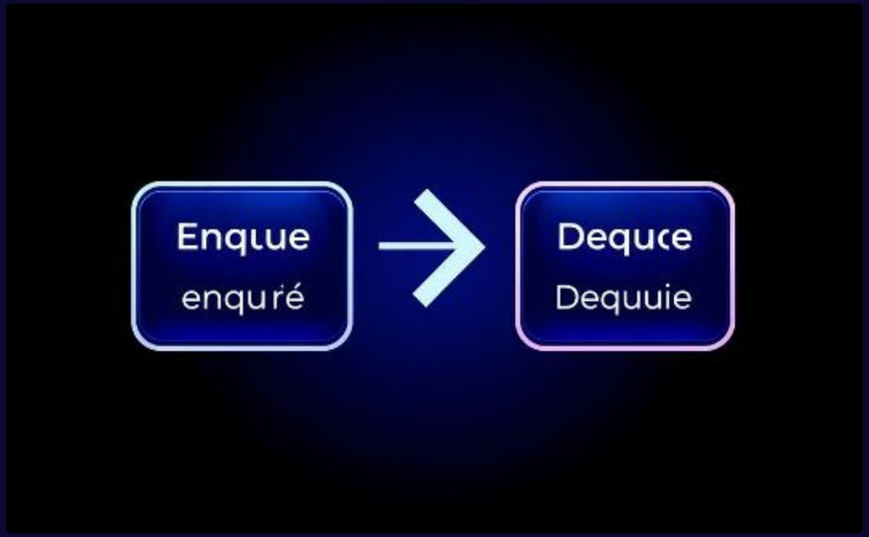
Vehicles transporting food orders

rapidly across urban areas.

Order Icons

Visual cues representing order stages

within the queue system.



Queue Diaąram Illustrates

the order flow from placement to

delivery completion.

Simulation Output Examples

Queue Length

Tracks how many orders are waiting at a time.

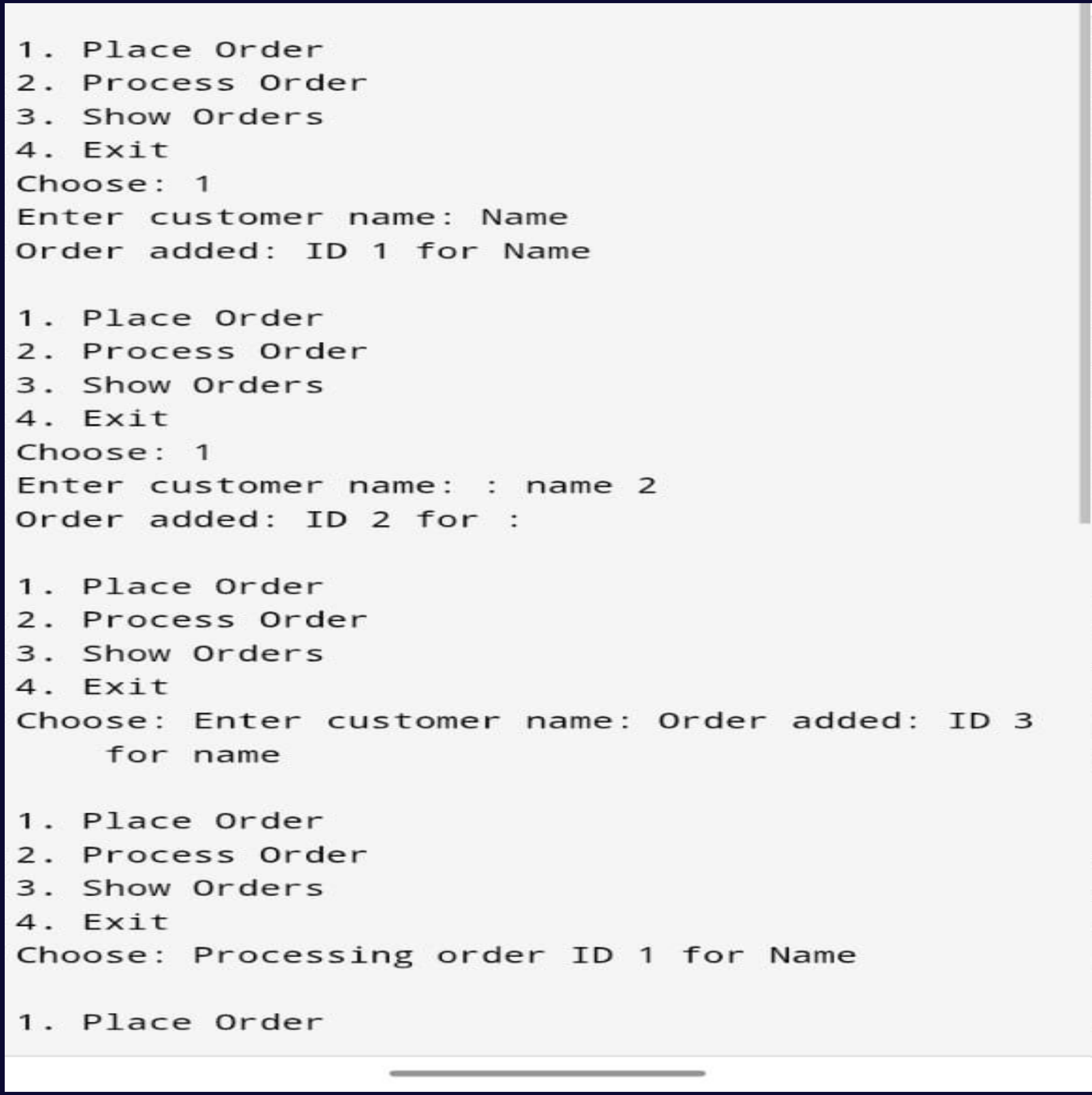
Delivery Time

Estimates minutes taken for order completion.

Example Output

"Queue Length: 3" and "Order Delivered in 10 minutes."

Output



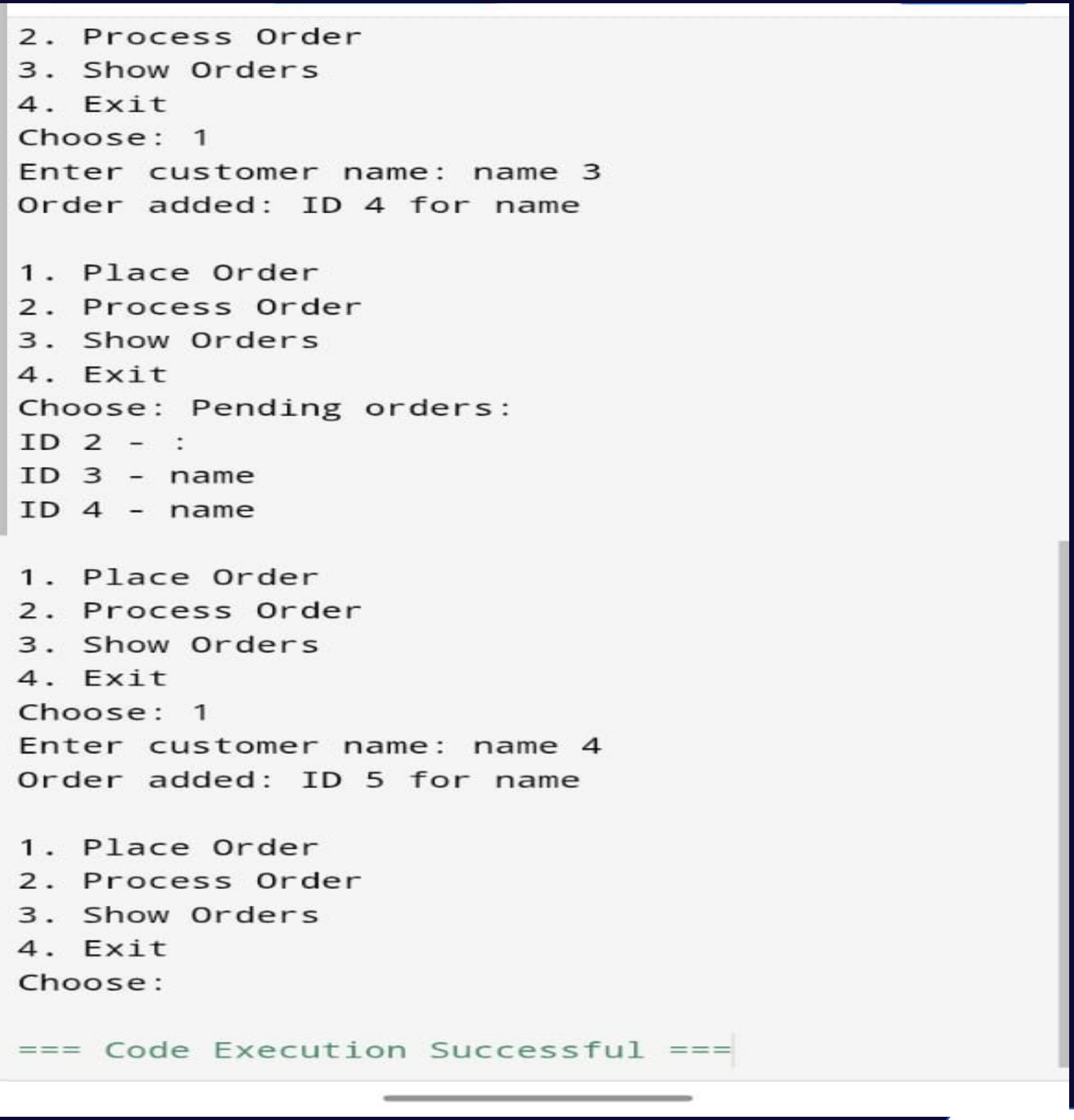
```
1. Place Order
2. Process Order
3. Show Orders
4. Exit
Choose: 1
Enter customer name: Name
Order added: ID 1 for Name

1. Place Order
2. Process Order
3. Show Orders
4. Exit
Choose: 1
Enter customer name: : name 2
Order added: ID 2 for :

1. Place Order
2. Process Order
3. Show Orders
4. Exit
Choose: Enter customer name: Order added: ID 3
    for name

1. Place Order
2. Process Order
3. Show Orders
4. Exit
Choose: Processing order ID 1 for Name

1. Place Order
```



```
2. Process Order
3. Show Orders
4. Exit
Choose: 1
Enter customer name: name 3
Order added: ID 4 for name

1. Place Order
2. Process Order
3. Show Orders
4. Exit
Choose: Pending orders:
ID 2 - :
ID 3 - name
ID 4 - name

1. Place Order
2. Process Order
3. Show Orders
4. Exit
Choose: 1
Enter customer name: name 4
Order added: ID 5 for name

1. Place Order
2. Process Order
3. Show Orders
4. Exit
Choose:

=== Code Execution Successful ===
```

Conclusion

"To conclude, our project on Food Delivery Queue System Simulation helped us understand how data structures, like queues, are used in real-life systems such as food ordering and delivery.

By implementing this in C, we applied our programming knowledge to build a functional and interactive system.

It also improved our logic-building, teamwork, and practical coding skills.

Overall, this project was a great experience, and we're proud to have learned and applied something useful and relevant."

THANK YOU !!!