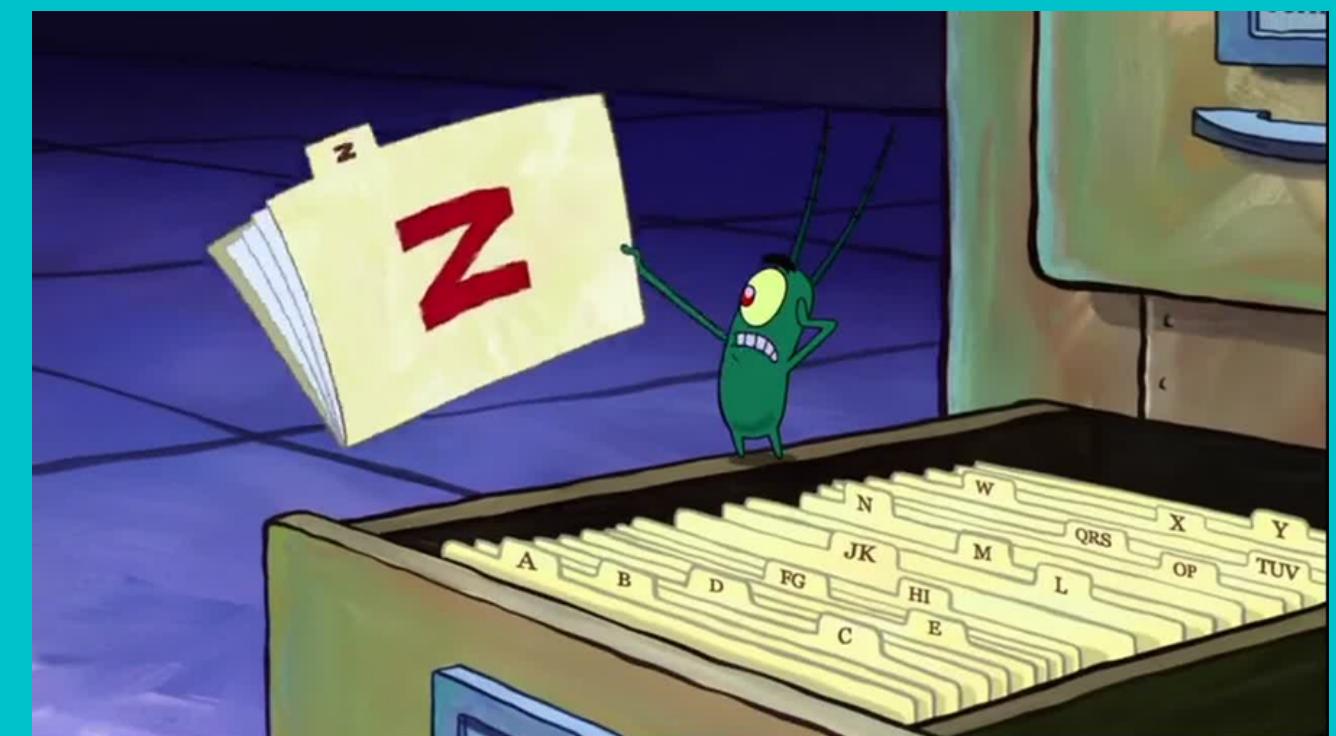


# The Krusty Krab Inventory Management System





# Planning Phase



# System Request



## Business Need

The Krusty Krab needs to be able to more efficiently manage inventory within the restaurant

- Move inventory tracking online
- Streamline reorder process
- Understand current inventory



## Business Value

Create single system for accessing and changing live inventory information

### Intangible Value

- Eliminate/reduce stockouts
- Understand spoilage/waste/theft
- Improve real-time decision making

### Tangible Value

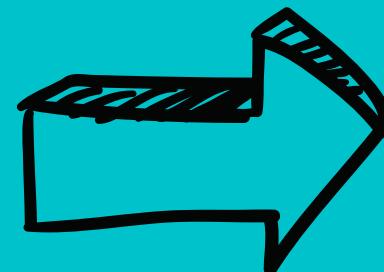
- Reduced inventory costs
- Reduced labor costs
- Increased customer sales

# System Request cont...

## Understanding the Scope: Business Requirements

### Orginal

- Server Enters Order information into POS system which will update live inventory
- Chefs and managers have access to system to make external updates (waste, loss, spoilage)
- Menu Items with associated ingredients listed in system
- System must be able to forecast future inventory item needs
- Communicated with Suppliers to automate reorder process
- Different users have distinct logins to gain access to certain features of system
- System optimizes reorder process based on forecasting to send reorder request to supplier
- System must provide information in easily comprehensible way



### Updated

- Server Enters Order information into POS system which will update live inventory
- Managers have access to system to make updates
- Menu items with associated ingredients listed in system
- Managers have unique manager login to access inventory side of system
- System sends low inventory notification to manager
- System must provide information in easily comprehensible ways

# Feasibility Analysis

## Technical Feasibility

- Servers are already familiar with the current operating system and the new system will be very similar with minimal additional electronic processes on their end.
- The current system was internally created so we have experience building a system of this caliber.

## Economic Feasibility

- ROI over 5 years: 49%
- NPV over 5 years: \$63,282
- Break-even occurs after 2.45 years



## Organizational Feasibility

- Management: managers support the creation of the new inventory management system. Allows them to make more informed decisions when it comes to managing inventory.
- Chefs: High risk associated with having to comply with recipe guidelines for live inventory tracking to be effective. Accounting for any spoilage/waste that occurs.

# Staffing Plan

**Chandler**

**Project Manager:**

Led the team, monitored project progress, set deadlines, solved issues that arose

**Alyssa**

**Infrastructure Analyst:**

Provided planning, design, and implementation of computer hardware, software, and network components

**James**

**Systems Analyst:**

Analyzed business process issues and conducted research on possible solutions and made recommendations based on findings

# Standards List

| Types of Standards                         | Standard   |
|--|--|
| <b>Documentation Standards</b>             | <ul style="list-style-type: none"><li>-The project name, date, and page number should be written in the top right corner of every document.</li><li>-Project deliverables should be included in the table of contents.</li></ul>                               |
| <b>Coding Standards</b>                    | <ul style="list-style-type: none"><li>-Proper indentation is necessary</li><li>-Avoid lengthy functions</li></ul>  |
| <b>Procedural Standards</b>                | <ul style="list-style-type: none"><li>-Consult with the project manager before adjusting the requirements document</li><li>-Attend both Zoom and in-person meetings with team members whenever they occur.</li></ul>   |
| <b>Specification Requirement Standards</b> | <ul style="list-style-type: none"><li>-Describe the system's primary purpose</li><li>-Understand the end users of the system</li></ul>   |
| <b>User Interface Design Standards</b>     | <ul style="list-style-type: none"><li>-Include image of specific product (like chicken wings) to make it easier for staff to identify and adjust inventory.</li><li>-Bold inventory quantity then highlight in different color when quantity is low.</li></ul> |

# Standards List Highlight: Documentation

- Project name, date, and page number should be written on the top write corner on every document
- Project deliverables included in the table of contents

Krusty Krab Inventory Management System  
12/6/2022

1

## Planning

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## Analysis

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## Design

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# Risk Assessment

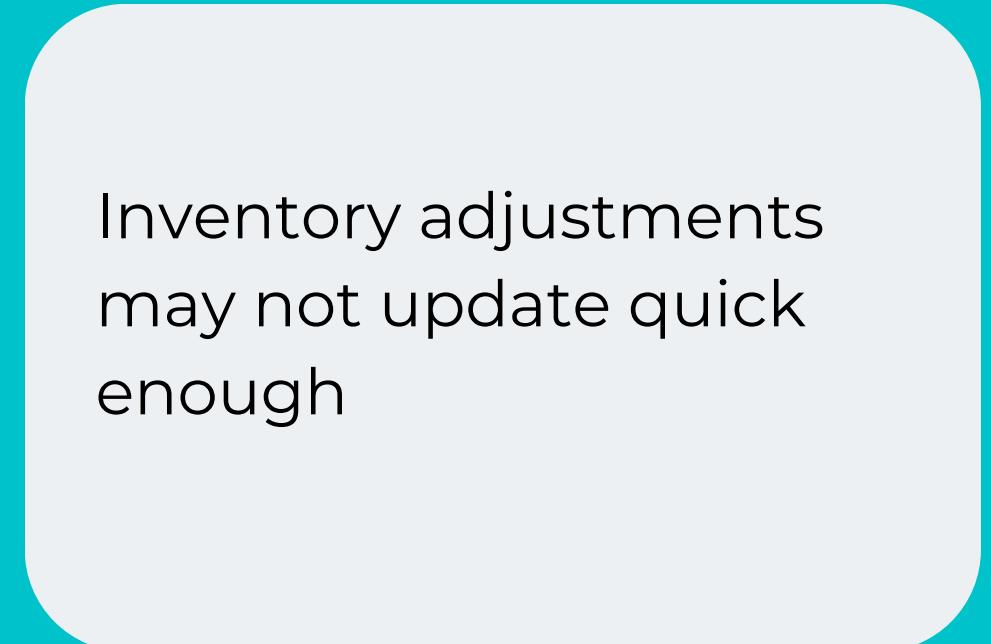
## Risk 1

Staff are unfamiliar with operating the new system



## Risk 2

Inventory adjustments may not update quick enough



## Risk 3

Users are not willing to adopt the newly developed system





# Analysis Phase



# Eliciting Requirements: Questionnaire

**Restaurant System Questionnaire**

The following questions will be about your restaurants current system and whether or not a new system would be beneficial.

jayslice244life@gmail.com (not shared) [Switch account](#)

1. Does your restaurant have a current system in place for dealing with inventory?

Yes  
 No  
 Other: \_\_\_\_\_

2. If so, are the inventory levels typically accurate on average?

Yes  
 No  
 No current system

3. For those who currently don't have a system in place for inventory, do you think a new system would be beneficial to the business?

Yes  
 No  
 N/A

4. Adding on to the question above, would you prefer the system to automatically update the inventory levels once you place the order in the system?

Yes  
 No  
 N/A

5. For managers, would you be interested in a system that would update inventory levels automatically once you place an order and the order arrives?

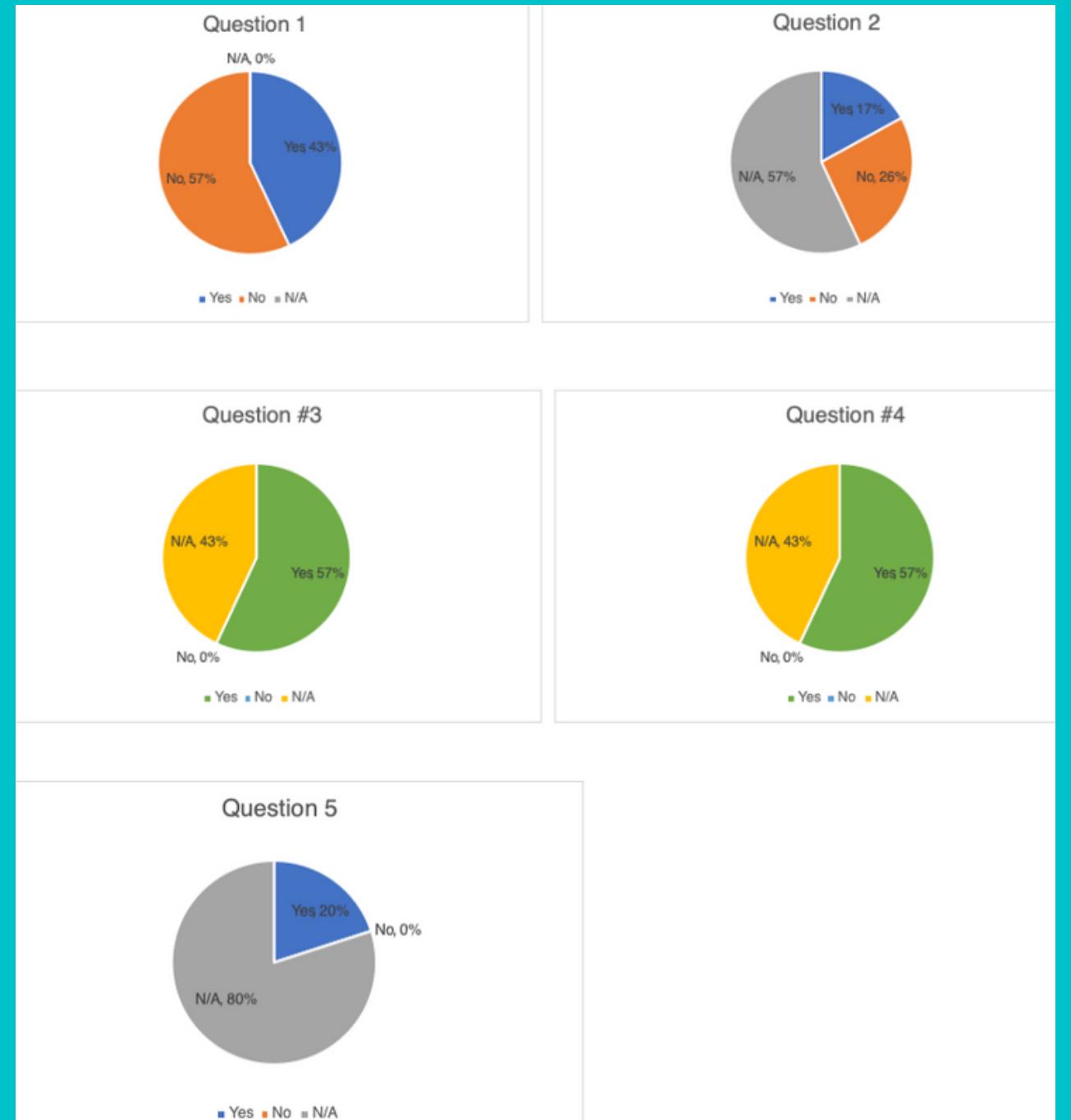
Yes  
 No  
 N/A

Thanks for taking time to complete the questionnaire!

[Submit](#) [Clear form](#)

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## Server

Server enters order information through Point of Sale (POS) System



# USERS



## Manager

Updates, Checks, and Reorders Inventory

# Non-Functional Requirements

## Operational

- Usable on tablets and desktop
- Connect to printers wirelessly



## Performance

- Response times less than 5 seconds
- Updated with new inventory every 15 mins



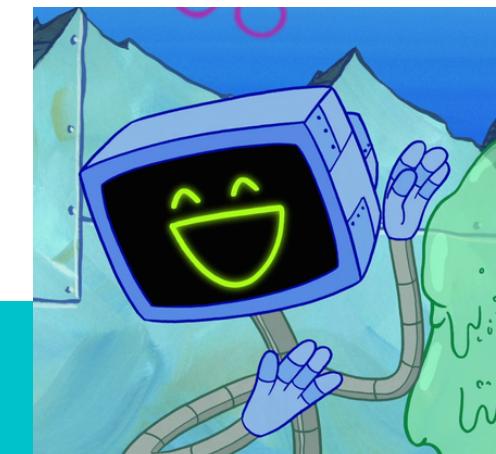
## Security

- Managers assigned unique username and password for system login
- Password must be 16 characters, at least one number, and a special character (?!,@,\*)



## Cultural and Political

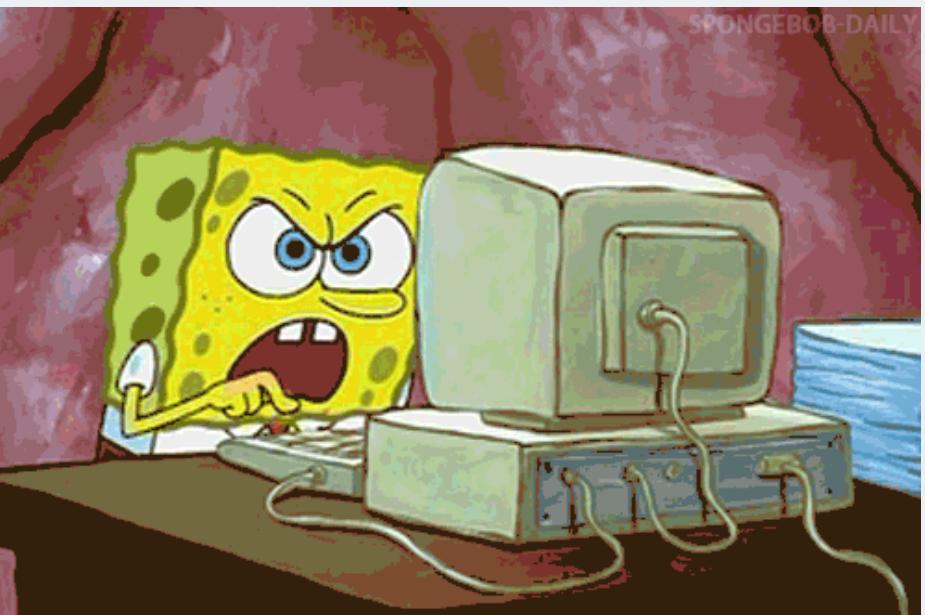
- All computer equipment purchased from Dell
- User systems operate on Windows



# Functional Requirements

## Server

- Processing Customer Orders



## Manager

- Track food
- Reorder inventory Request
- Manager Inventory Access
- System Inventory Updates

# Use Cases

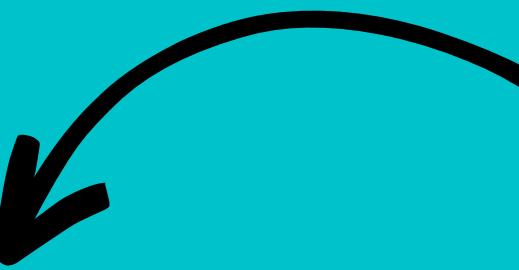
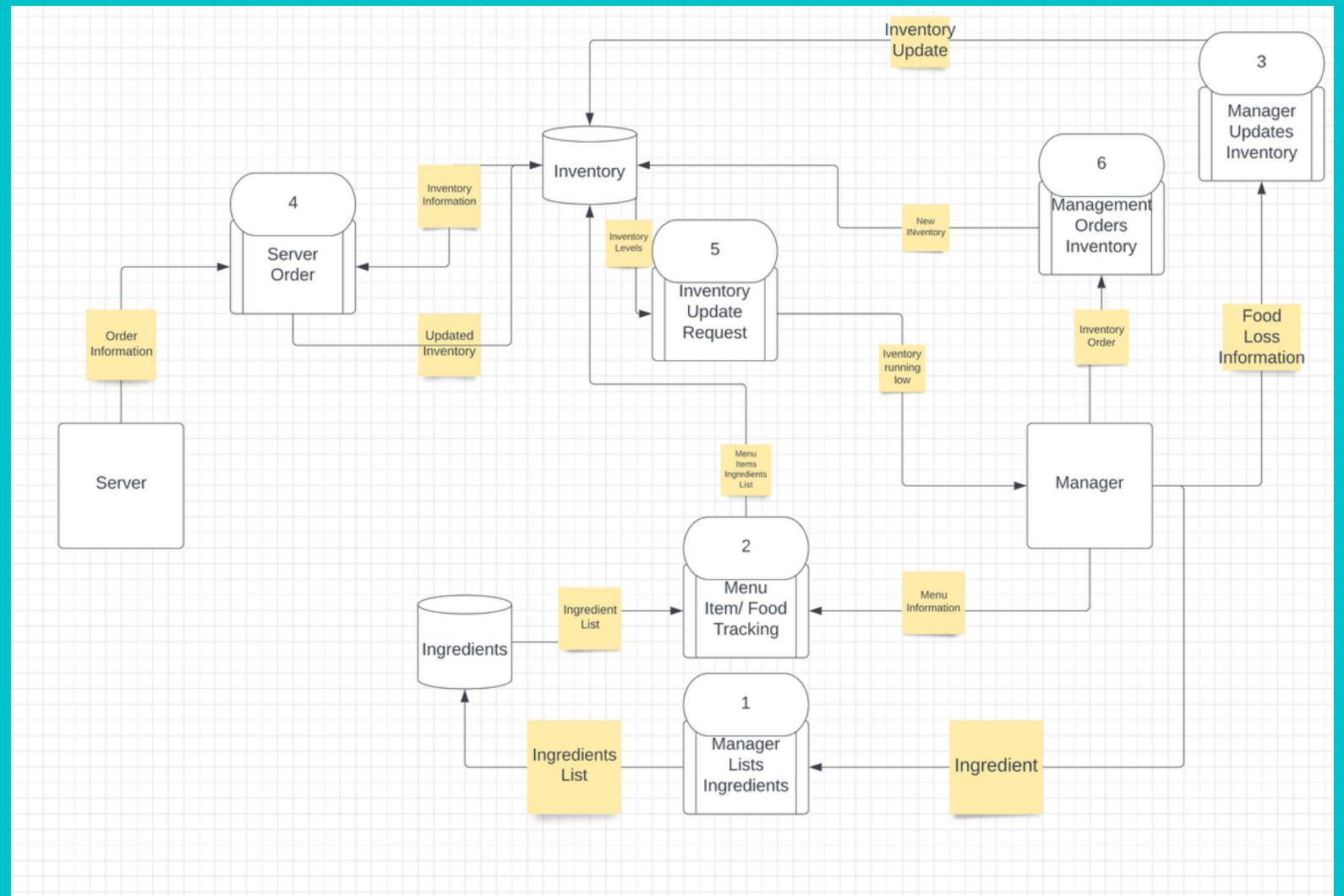
| <b>Use Case Name:</b> Server Inventory Update   | <b>ID:</b> 04                                   | <b>Priority:</b> High |             |
|---|---|-----------------------|-------------|
| <b>Brief Description:</b> The server inputs orders into the system to <u>in order</u> for the inventory database to update the amount of inventory the restaurant has |   |                       |             |
| <b>Actor:</b> Server  |   |                       |             |
| <b>Trigger:</b> Server has an order that the inventory needs to be able to update   |   |                       |             |
| <b>Type</b> "External" Temporal   |   |                       |             |
| <b>Preconditions:</b>   |   |                       |             |
| <b>Normal Course</b><br>1. Server will input orders into POS system<br>2. System will update inventory based on information entered                                   | <b>Information for Steps</b><br>Input: Order ID |                       |             |
|   | Input Inventory Information                     |                       |             |
| Output: Updated Inventory   |   |                       |             |
| <b>Alternative Course(s):</b>   |   |                       |             |
| <b>Postconditions:</b>  |   |                       |             |
| <b>Exceptions:</b>  |   |                       |             |
| <b>Summary</b>  |   |                       |             |
| Inputs  | Source  | Outputs               | Destination |
| Customer Order  | Server  | Updated Inventory     | Inventory   |
| Inventory Information   | Inventory                                       |                       |             |

| <b>Use Case Name:</b> Inventory Update Request  | <b>ID:</b> 05   | <b>Priority:</b> Low              |             |
|---|---|-----------------------------------|-------------|
| <b>Brief Description:</b> This use case describes the receipt of low inventory levels sent to managers  |   |                                   |             |
| <b>Actor:</b> Manager   |   |                                   |             |
| <b>Trigger:</b> Inventory levels are low  |   |                                   |             |
| <b>Type</b> "External" Temporal   |   |                                   |             |
| <b>Preconditions:</b>   |   |                                   |             |
| <b>Normal Course</b><br>1.0 Record Receipt of Low Inventory<br>1. Manager retrieves low inventory notification<br>2. System records date/time notification is received<br>3. Manager records the quantity necessary to order. | <b>Information for Steps</b><br>Input: Low Inventory level notification |                                   |             |
|   |   | Output: Quantity needed for order |             |
| <b>Alternative Course(s):</b>   |   |                                   |             |
| <b>Postconditions:</b>  |   |                                   |             |
| <b>Exceptions:</b>  |   |                                   |             |
| Summary Inputs  | Source  | Summary Outputs                   | Destination |
| Low inventory level notification  | Inventory update request  | Quantity needed for order         | Manager     |

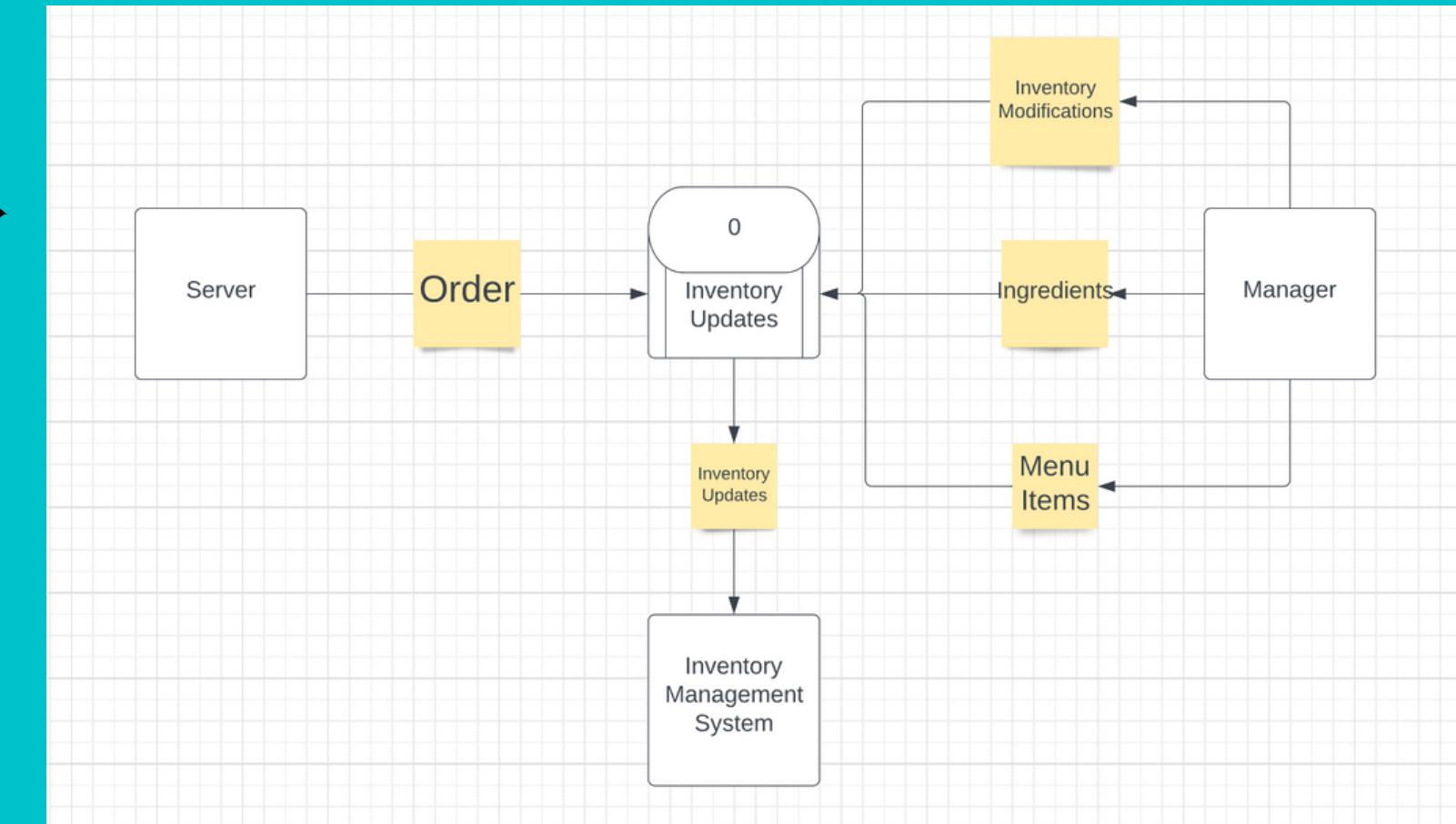
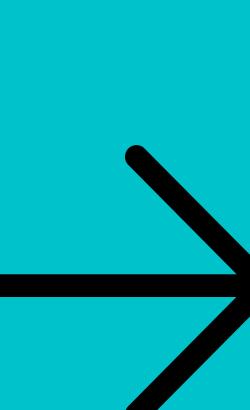
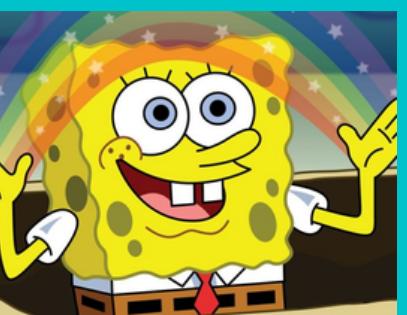
# Context Diagram

# Process Models

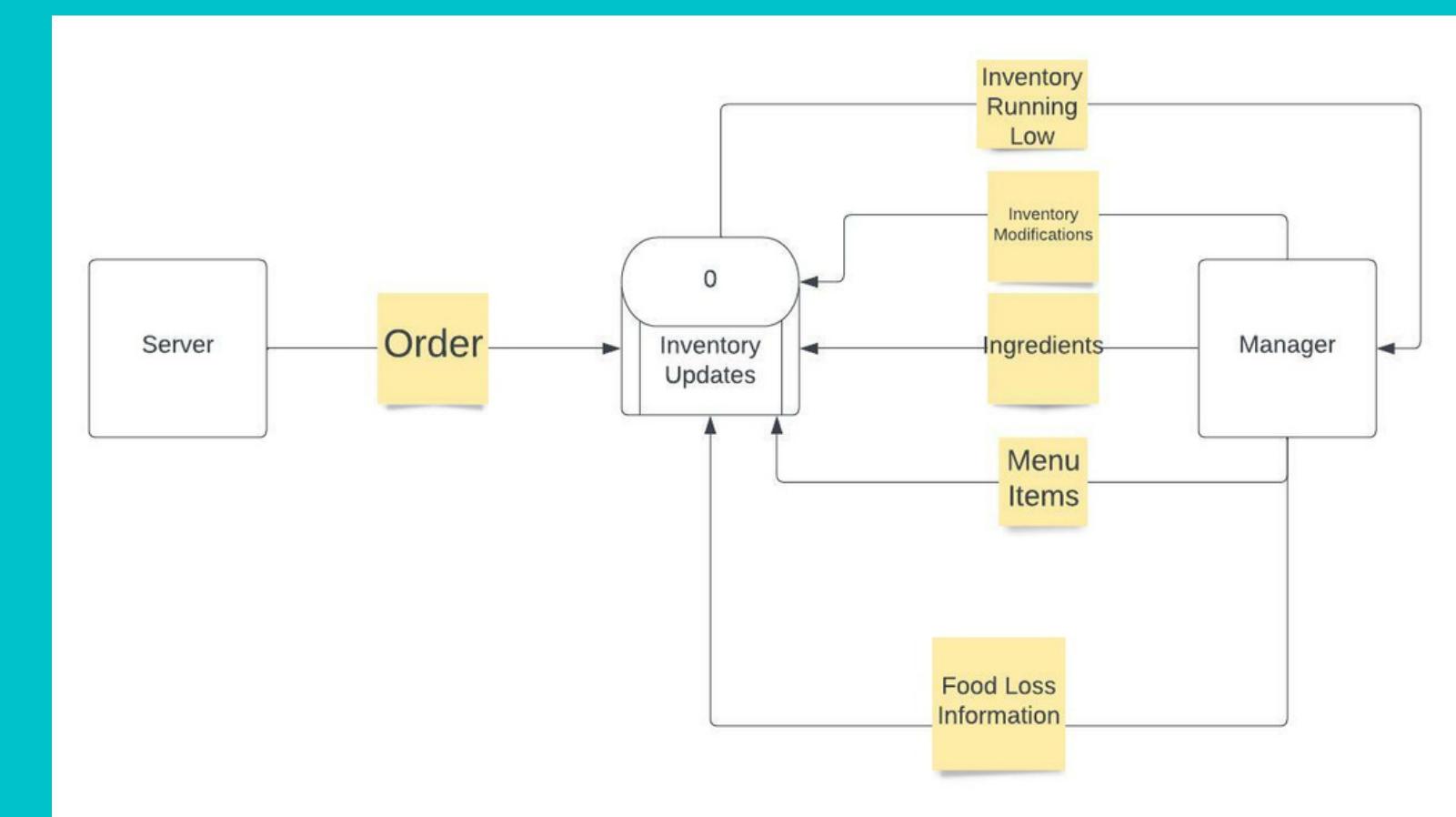
## Level 0 Diagram



Perfectly Balanced

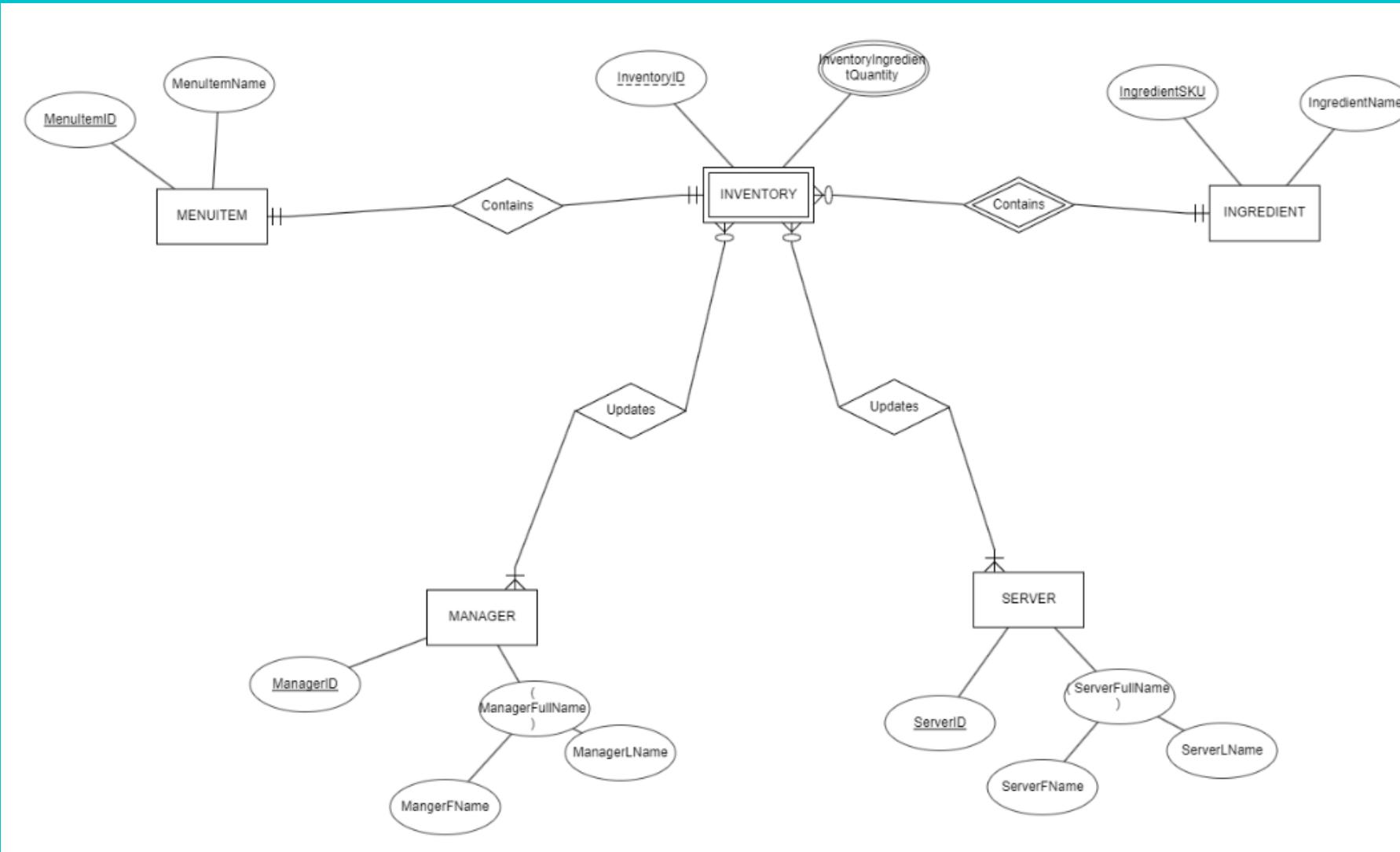


Original

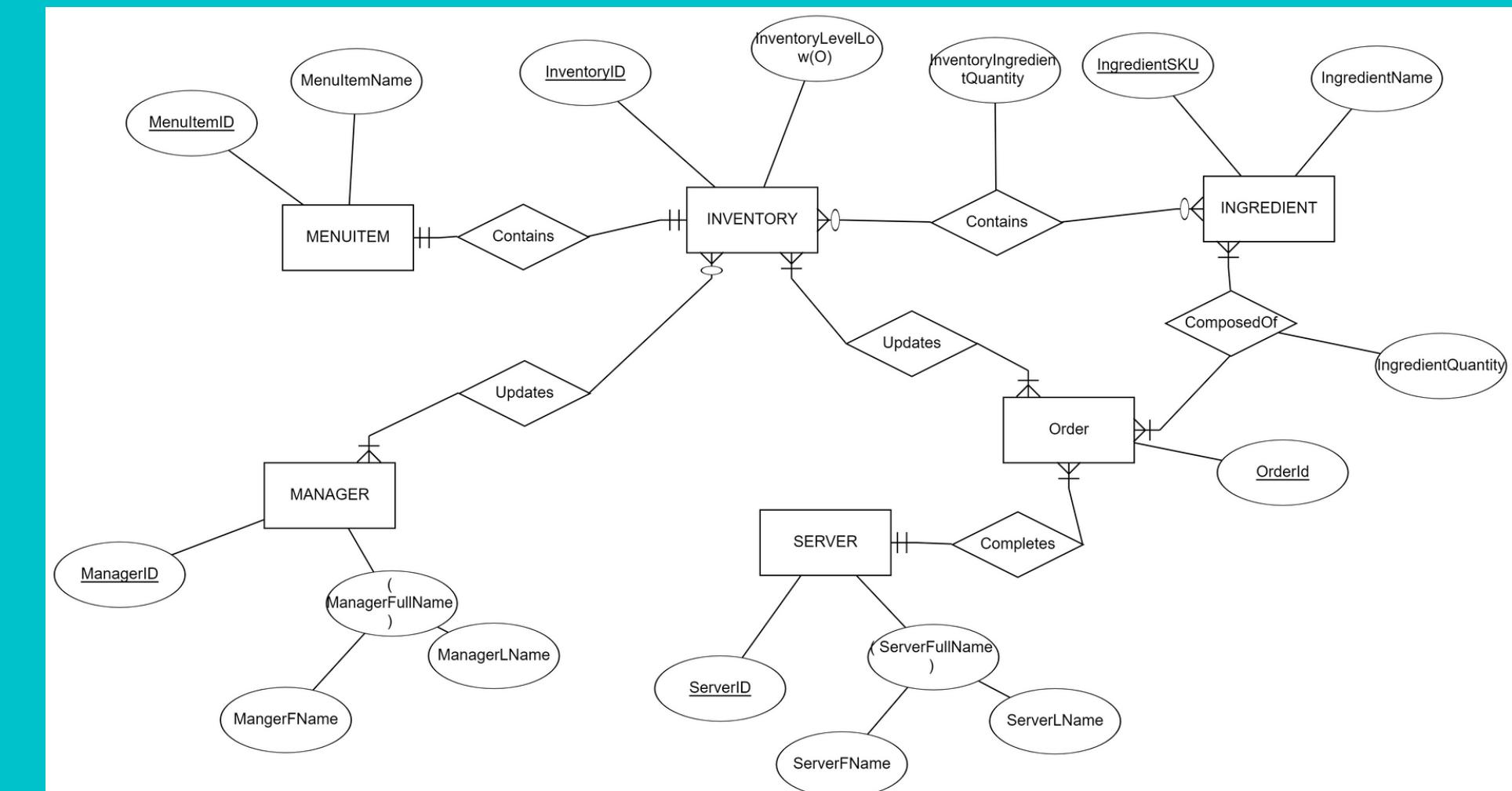


Revised

# Entity Relationship Diagrams



## Updated ERD



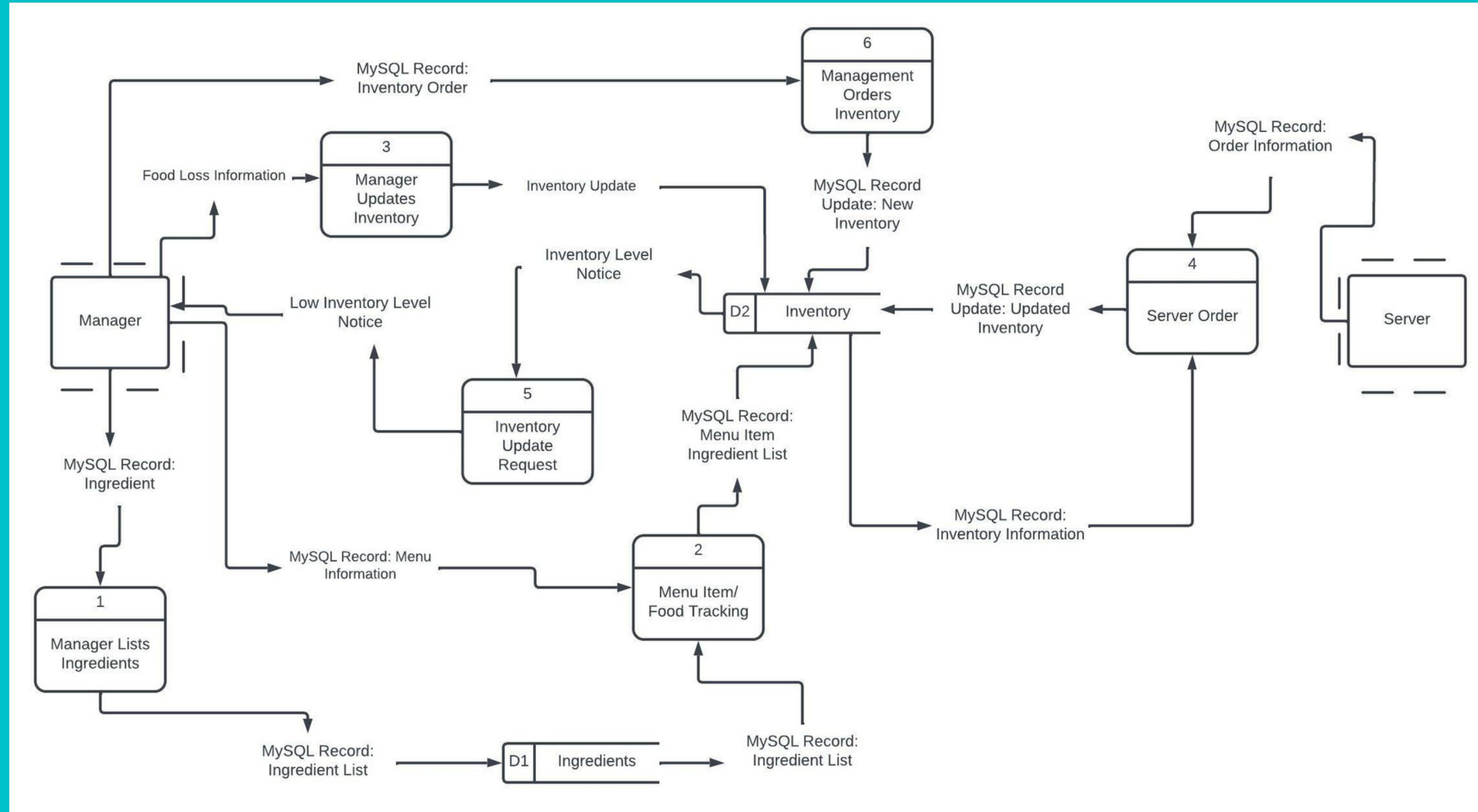


# Design Phase

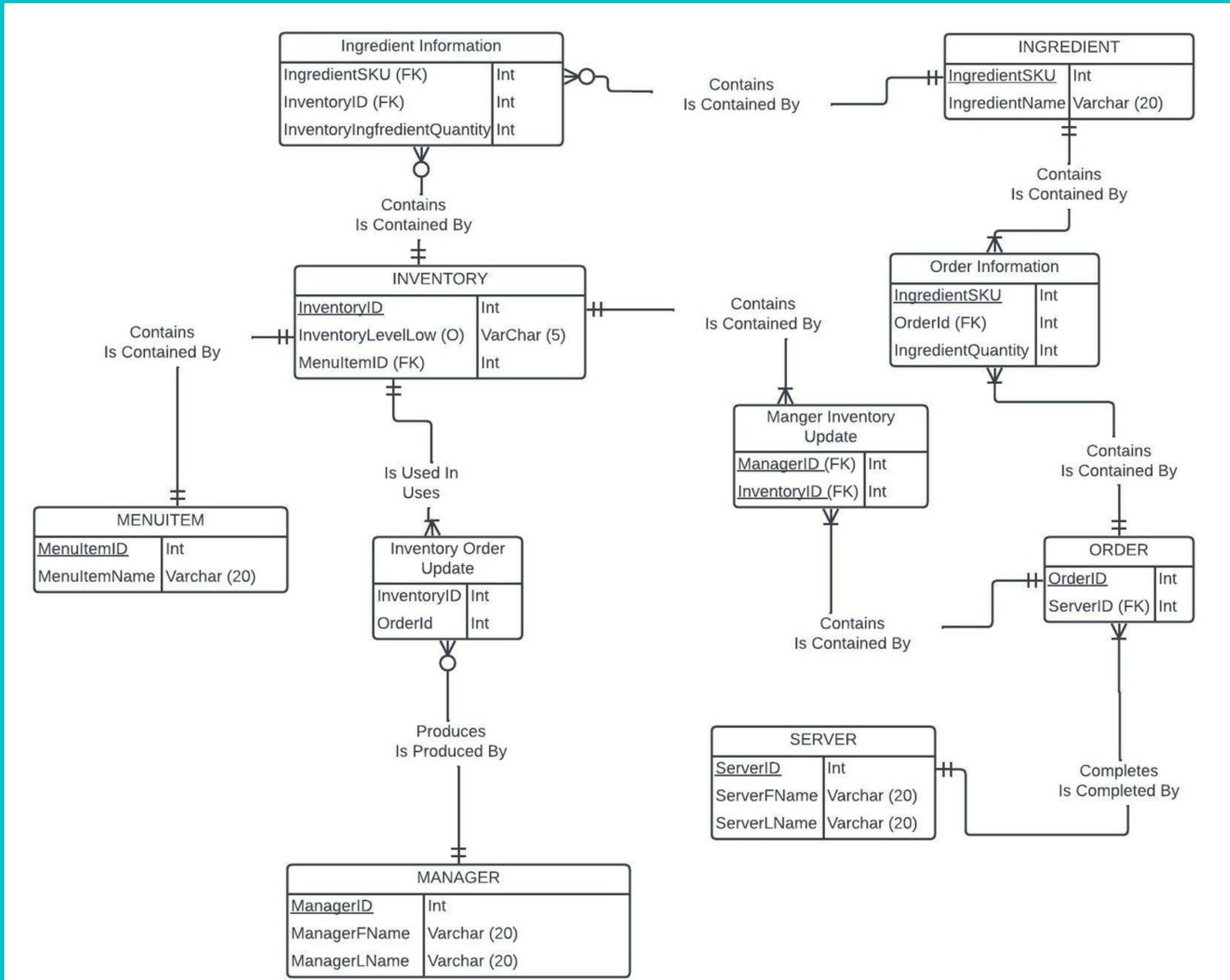
# Alternative Matrix

| Evaluation Criteria                      | Relative Importance (Weight) | Alt 1: Custom Application using VB.NET | Score (1-5) | Wtd Score | Alt 2: Outsourced Application using Itransition | Score (1-5) | Wtd Score | Alt 3: Packaged Software | Score (1-5) | Wtd Score |
|--|------------------------------|--|-------------|-----------|---|-------------|-----------|--------------------------|-------------|-----------|
| <b>Technical Issues:</b>                 |                              |  |             |           |   |             |           |                          |             |           |
| Integration with existing infrastructure | 15                           | Strong                                 | 5           | 75        | Very little                                     | 2           | 30        | Available                | 4           | 60        |
| Database Capabilities                    | 10                           | Excellent                              | 5           | 50        | None  | 1           | 10        | Limited                  | 3           | 30        |
| Access to underlying code                | 10                           | Easy                                   | 5           | 50        | Not possible                                    | 1           | 10        | Limited                  | 3           | 30        |
| <b>Economic Issues:</b>                  |                              |  |             |           |   |             |           |                          |             |           |
| Cost                                     | 25                           | \$100/month                            | 1           | 25        | \$20/month                                      | 5           | 125       | \$30/month               | 4           | 100       |
| <b>Organizational Issues:</b>            |                              |  |             |           |   |             |           |                          |             |           |
| Market Adoption                          | 10                           | Strong                                 | 5           | 50        | Strong  | 5           | 50        | Moderate                 | 3           | 30        |
| Ease of Learning                         | 15                           | High                                   | 5           | 75        | High  | 5           | 75        | Complex                  | 2           | 30        |
| Ease of Use                              | 15                           | Easy to use                            | 5           | 75        | Not very flexible                               | 2           | 30        | Moderate                 | 3           | 45        |
| Total                                    | 100                          |  |             | 400       |   |             | 330       |                          | 325         |           |

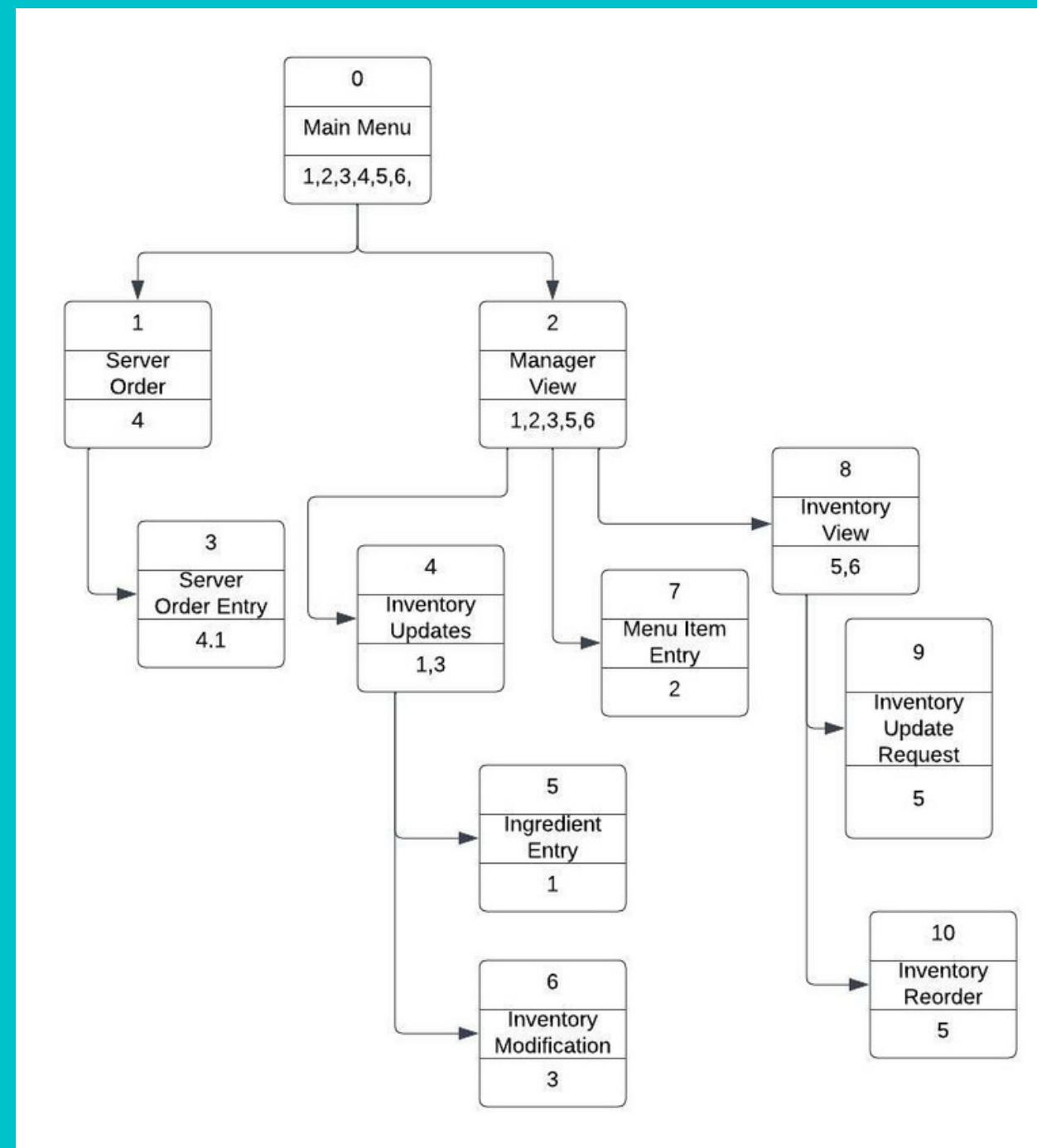
# Physical Process Model



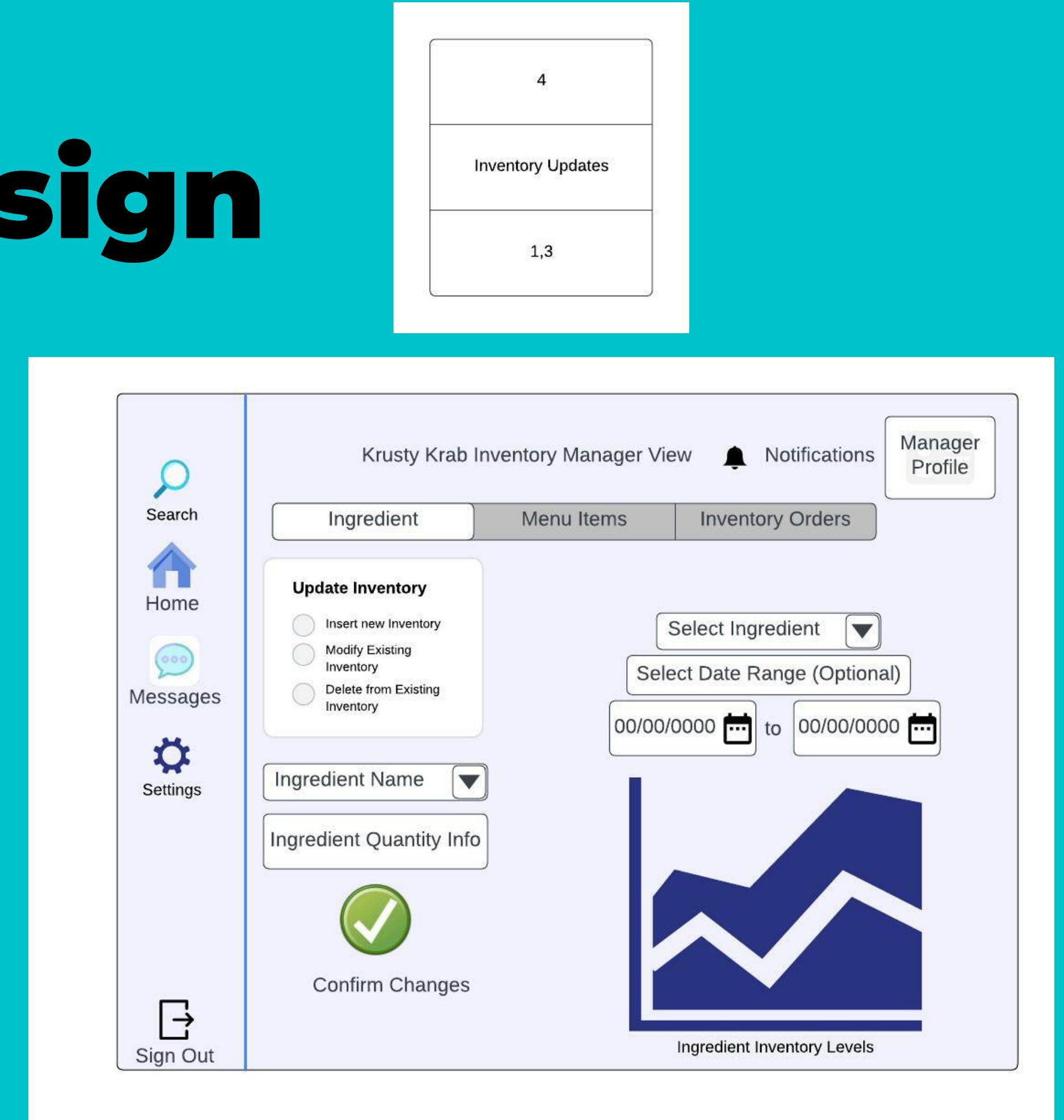
# Physical ERD



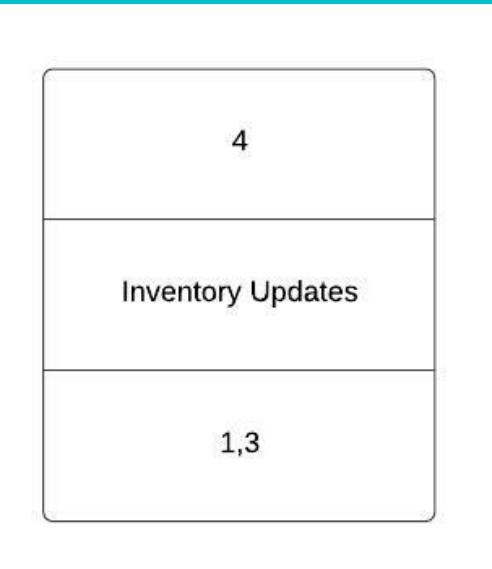
# Interface Design



Interface Structure Diagram

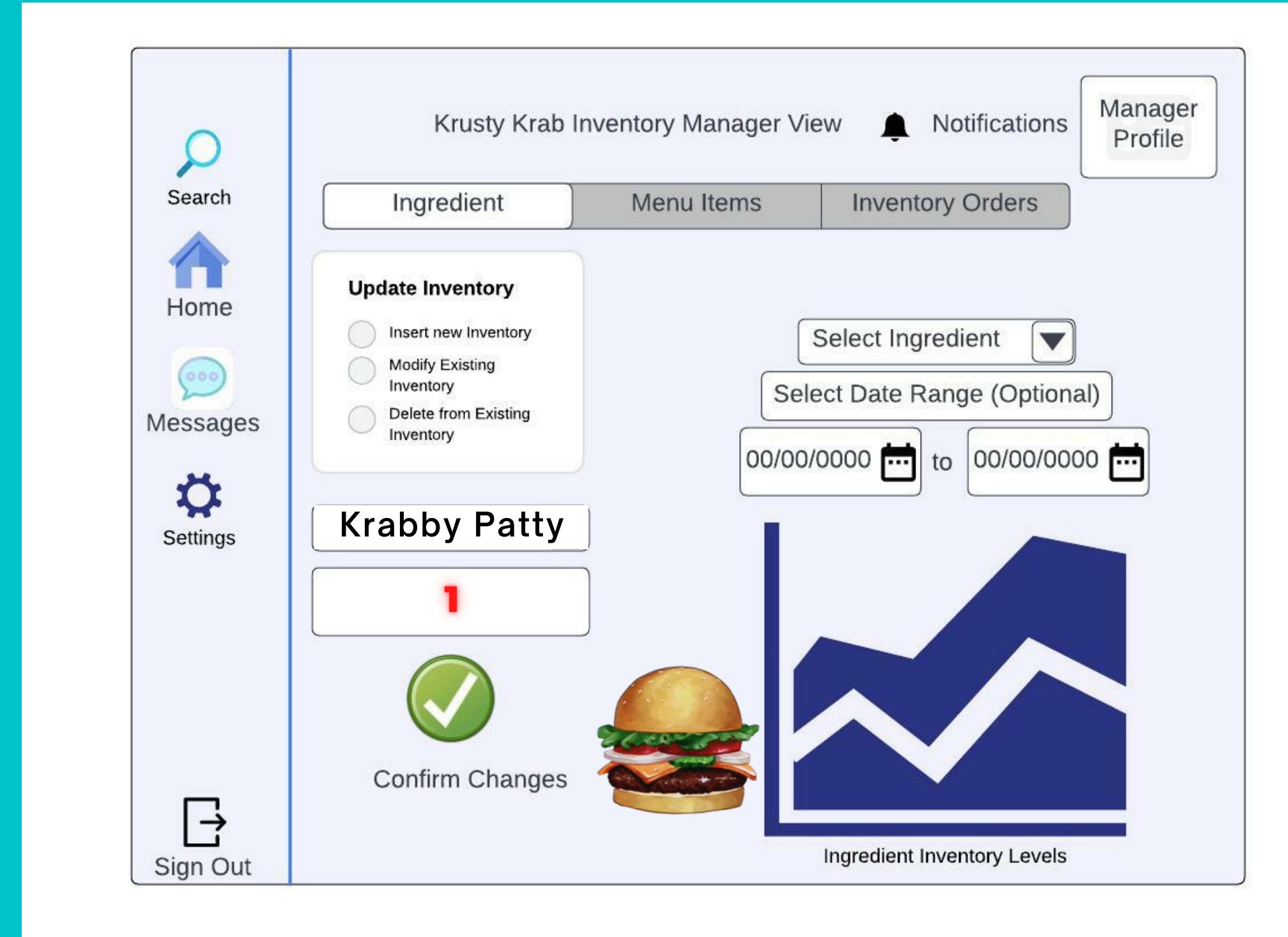


User Interface Prototype: Manager Ingredient Inventory View



# Standards List Highlight: User Interface Design

- Include an image of the specific product to make it easier for staff to identify and adjust inventory
- Bold inventory quantity
- Highlight inventory number in a different color when quantity is low



# Reflection



Working with everyone's schedule made it difficult to meet frequently

Making deliverables from scratch took more time than initially thought

Learning curve when utilizing different platforms to develop deliverables

This project gave us great experience that will help us moving forward

