

The Krusty Krab Inventory Management System

Design Phase Deliverables

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INFS 347

December 6, 2022

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Alternative Matrix

Evaluation Criteria	Relative Importance (Weight)	Alt 1: Custom Application using VB.NET	Score (1-5)	Wtd Score	Alt 2: Custom Application using ITransition	Score (1-5)	Wtd Score	Alt 3: Packaged Software	Score (1-5)	Wtd Score
Technical										
Issues:										
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		3	30
Economic										
Issues:										
Cost	25	\$100/month	1	25	\$20/month	5	125	\$30/month	4	100
Organizational										
Issues:										
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

Architecture Report

Architecture Design:

1. Operational Requirements

Technical Environment	1.1	The system will be able to work on a desktop computer, laptops, and tablet
	1.2	Only those with approved credentials will be able to log into the system and have write access
System Integration	1.3	Managers can view live inventory information for specific ingredients
	1.4	Inventory information must be updated through server order entry in the POS system
	1.5	Managers must be able to update inventory information
	1.6	Inventory information must be reflected in live inventory measures
	1.7	The manager must get low inventory notifications within the system portal
Portability	1.8	The system must be able to work on windows devices
Maintainability	1.9	The system must be able to continually track live inventory information during operating hours

2. Performance Requirements

Speed	2.1	Response times for entering information must be less than 5 seconds
	2.2	Response times for reporting information must be less than 10 seconds
Capacity	2.3	The system must be able to store up to 50 terabytes of information
Availability	2.4	The system must be available two hours before, during, and two hours after operating hours
	2.5	The system must have the option to be available outside of operating hours when not undergoing maintenance at the request of management
Reliability	2.6	The system should have 99% uptime when expected to be up

(Architecture Design continued on the next page)

3. Security Requirements

System Value	3.1	The system has high value and is essential for Krusty Krab to be able to monitor inventory online
Access	3.2	Only registered managers will have access to inventory information
Control/Authentication	3.3	Inventory and order information must be transmitted securely
Encryption	3.4	Manager login information must be transmitted securely
Virus Control	3.5	All standard virus controls are mandated

4. Cultural and Political Requirements

Multilingual	4.1	No specific multilingual requirements are expected
Customization	4.2	Managers will have special customization options for entering inventory information
Unstated Norms	4.3	No special unstated norms are expected
Legal	4.4	Not special legal requirements are expected

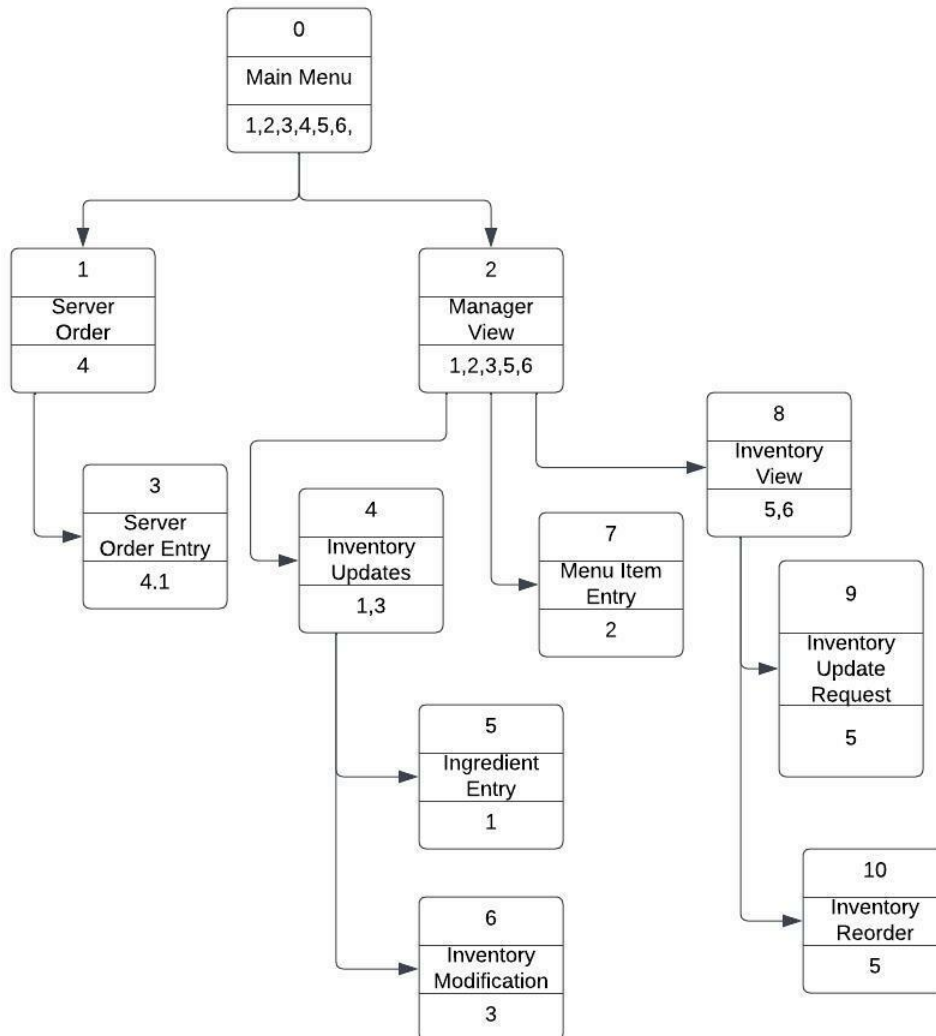
Hardware and Software Specification:

	Standard Client	Standard Web Server	Standard Application Software	Standard Database Server
Operating System	• Windows 11 Pro	• Linux	• Linux	• Linux
Special Software	• Adobe Acrobat Reader	• Apache	• Plesk	• Oracle
Hardware	• 1 Terabyte Disk Drive • 24-inch LED Monitor	• 8 Terabyte Disk Drive	• 2 Terabyte	• 128 Terabyte Disk Drive
Network	• Always-on Broad-band, preferred	• Dual 100 Mbps Ethernet	• Dual 100 Mbps Ethernet	• Dual 100 Mbps Ethernet

Interface Design

Use Scenarios:

Use Scenario: Manager Entering Inventory Information	Use Scenario: Manager Viewing Inventory Levels
Manager wants to input/edit inventory data that the system was not able to update on its own.	Manager needs to view inventory levels in order to confirm that what the system is displaying is accurate to the inventory in the kitchen
<ol style="list-style-type: none">1. Manager logs into system2. Manager selects the inventory icon3. Manager views the list of items in the inventory and selects the item that needs to be updated4. Manager updates the inventory information and selects the reason for the manual update (ex: food loss/food expiration)5. Manager saves the inventory update6. Manager can back out of the inventory item and repeat steps 3-5 until they have completed all the updating Manager logs off the system	<ol style="list-style-type: none">1. Manager logs into the system2. Manager selects the inventory icon3. Manager views the list of items that are in the inventory4. Manager selects inventory item that they would like to check5. Manager is able to view the levels of the inventory item selected and compare it to the actual levels in the kitchen6.<ol style="list-style-type: none">(a) Manager can back out of inventory items if the levels match(b) Manager needs to update inventory levels if they do not match. (See Use Case: Manager Entering Inventory Information steps 4 and 5 for this process)7. Manager can repeat steps 3-6 until they have checked all the inventory items they needed to8. Manager logs off the system

Interface Structure Diagram:

User Interface Prototype: Manager Ingredient Inventory View

The image is a user interface prototype for the 'Krusty Krab Inventory Manager View'. It features a light blue background with a vertical sidebar on the left containing navigation icons and labels: a magnifying glass for 'Search', a house for 'Home', speech bubbles for 'Messages', a gear for 'Settings', and a door with an arrow for 'Sign Out'. The main content area is titled 'Krusty Krab Inventory Manager View' and includes a 'Notifications' bell icon and a 'Manager Profile' button. Below the title are three tabs: 'Ingredient' (active), 'Menu Items', and 'Inventory Orders'. The 'Ingredient' tab contains an 'Update Inventory' section with three radio buttons: 'Insert new Inventory', 'Modify Existing Inventory' (selected), and 'Delete from Existing Inventory'. Below this is an 'Ingredient Name' dropdown menu and an 'Ingredient Quantity Info' field. A large green checkmark icon is positioned above a 'Confirm Changes' button. To the right of these controls is a date range selector with a 'Select Ingredient' dropdown, a 'Select Date Range (Optional)' label, and two date input fields (both showing '00/00/0000') with calendar icons. At the bottom right is a blue area chart titled 'Ingredient Inventory Levels' showing fluctuating data over time.

Krusty Krab Inventory Manager View

Notifications

Manager Profile

Ingredient Menu Items Inventory Orders

Update Inventory

- ☐ Insert new Inventory
- ☒ Modify Existing Inventory
- ☐ Delete from Existing Inventory

Ingredient Name

Ingredient Quantity Info

Confirm Changes

Select Ingredient

Select Date Range (Optional)

00/00/0000 to 00/00/0000

Ingredient Inventory Levels

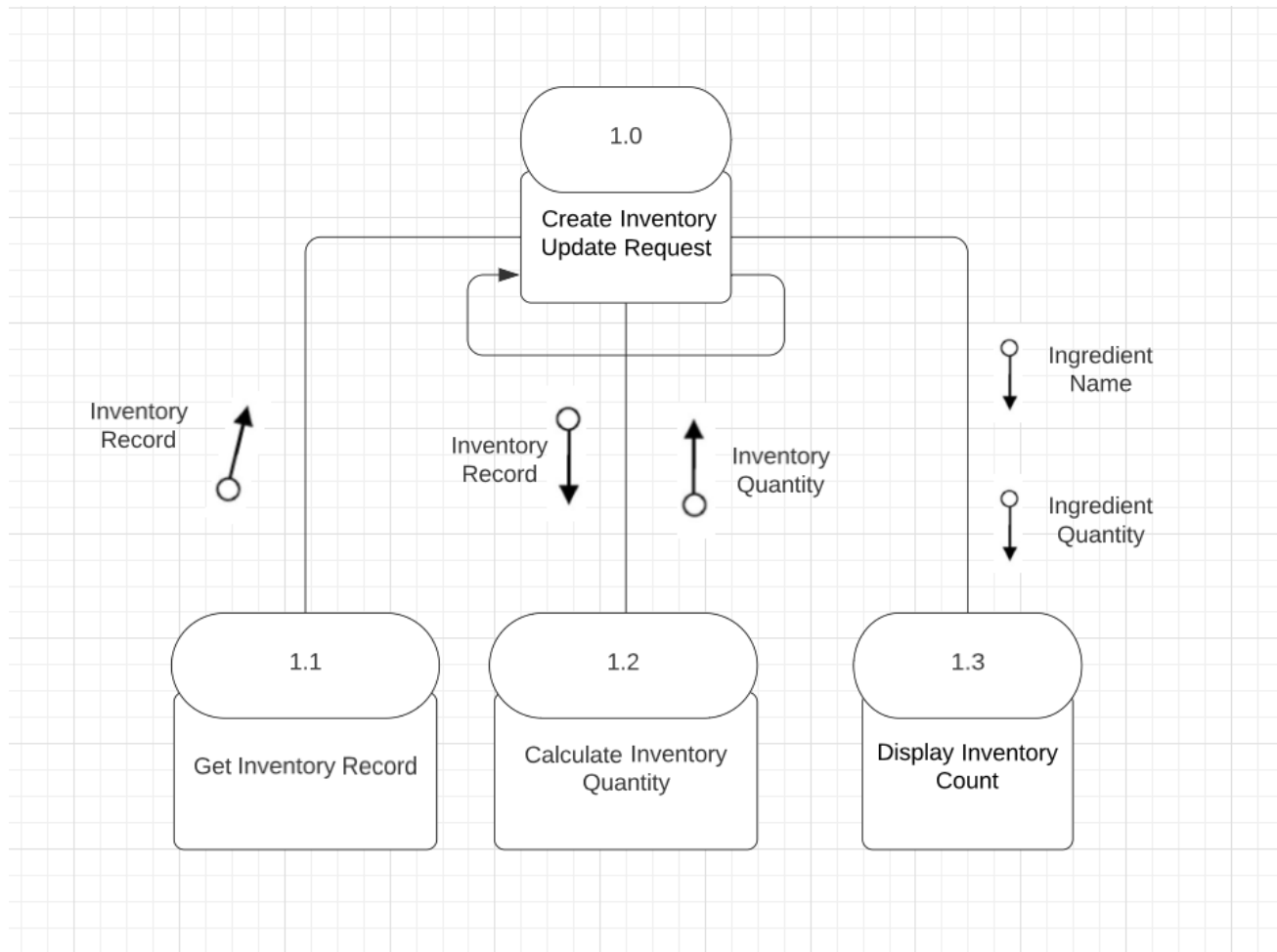
The diagram illustrates the data flow for a restaurant management system, showing the interaction between various components and the MySQL database records.

Components and Data Flows:

- Manager** (Top Left):
 - Interacts with **Manager Lists** (1) via **MySQL Record: Ingredient**.
 - Interacts with **Manager Updates Inventory** (3) via **Food Loss Information**.
 - Interacts with **Management Orders Inventory** (6) via **MySQL Record: Inventory Order**.
 - Interacts with **Inventory** (D2) via **Low Inventory Notice**.
 - Interacts with **Inventory Update Request** (5) via **Inventory Level Notice**.
 - Interacts with **Menu Item/Food Tracking** (2) via **MySQL Record: Menu Information**.
 - Interacts with **Server Order** (4) via **MySQL Record: Inventory Information**.
- Manager Lists** (1):
 - Interacts with **MySQL Record: Ingredient List** (D1) via **MySQL Record: Ingredient List**.
- Manager Updates Inventory** (3):
 - Interacts with **Inventory** (D2) via **Inventory Update**.
- Management Orders Inventory** (6):
 - Interacts with **MySQL Record: Update: New Inventory** (D2) via **MySQL Record: Update: New Inventory**.
- Menu Item/Food Tracking** (2):
 - Interacts with **Inventory** (D2) via **MySQL Record: Menu Item Ingredient List**.
 - Interacts with **Server Order** (4) via **MySQL Record: Inventory Updated**.
- Inventory** (D2):
 - Interacts with **Inventory Update Request** (5) via **Inventory Level Notice**.
 - Interacts with **Server Order** (4) via **MySQL Record: Inventory Updated**.
- Inventory Update Request** (5):
 - Interacts with **MySQL Record: Inventory Updated** (D2) via **MySQL Record: Inventory Updated**.
- Server Order** (4):
 - Interacts with **Server** (Bottom Right) via **MySQL Record: Order Information**.
- Server** (Bottom Right):
 - Interacts with **MySQL Record: Order Information** (D2) via **MySQL Record: Order Information**.

Program Design

Structure Chart:



Program Specification Form:**Program Specification for Create Inventory Update Request****Module** _____

Name: Get Inventory Record
Purpose: Obtain a record of all inventories in the system
Programmer: Patrick Star
Date due: 12/06/2022

C  **Python** **HTML/PHP** **Visual Basic**

Events _____

Occurs upon server input of new order

Input Name	Type	Used by	Notes
Order ID	Integer		

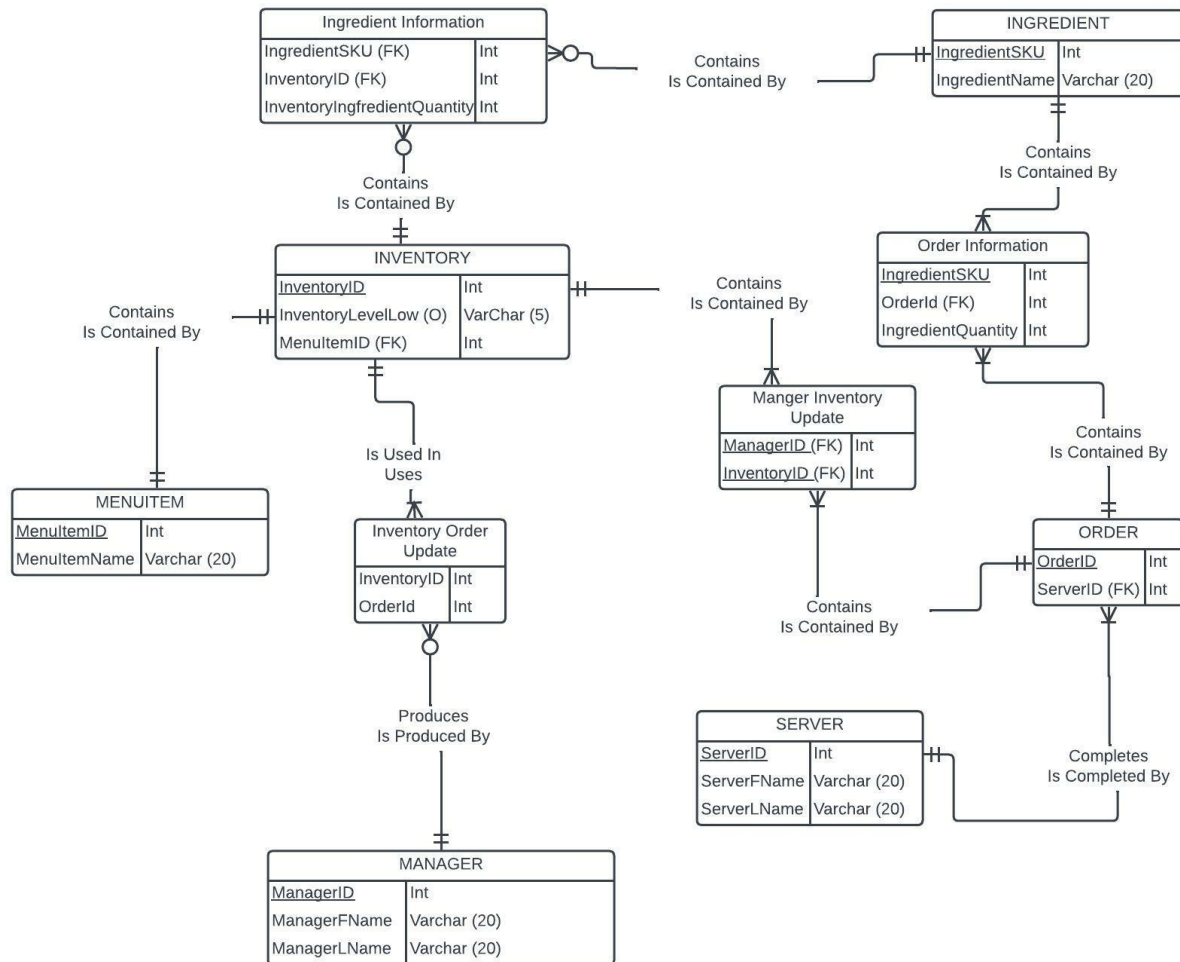
Output Name	Type	Used by	Notes
Inventory Level	Integer		

Pseudocode _____

```
not_found = True
count = 0
Do Until not_found = False
  Define search region
  If Inventory Level low, save Inventory Level
  not_found = False
EndIf
EndFor
count += 1
EndDo
Return
Other _____
```

Database and File Specification:

Physical Entity Relationship Diagram:



CRUD Matrix:

	1 Manager Lists Ingredients	2 Menu Item/Food Tracking	3 Manager Updates Inventory	4 Server Order	5 Inventory Update Request	6 Management Orders Inventory
MenuItem						
MenuItemID		R		R		
MenuItemName		R		R		
Inventory						
InventoryID			R		R	R
InventoryLevelLow					R	
InventoryIngredientQuantity			U		R	U
Ingredient						
IngredientSKU	C	R	R			R
IngredientName	C	R	R			R
Manager						
ManagerID	R		R			R
Manager Full Name	R					R
Server						
ServerID				R		
ServerFullName				R		

Volumetrics:

Field	Average Size (Characters)
Server ID	5
Server F Name	15
Server L Name	15
Record Size	35
Overhead	20%
Total Record Size	42
Initial Table Size	30,000
Initial Table Volume	2,300,000
Growth rate/month	975
Table Volume @ 3 years	2,335,100