The Krusty Krab Inventory Management System

Design Phase Deliverables

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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 Control/Authentication	3.2	Only registered managers will have access to inventory information
Encryption	3.3	Inventory and order information must be transmitted securely
	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

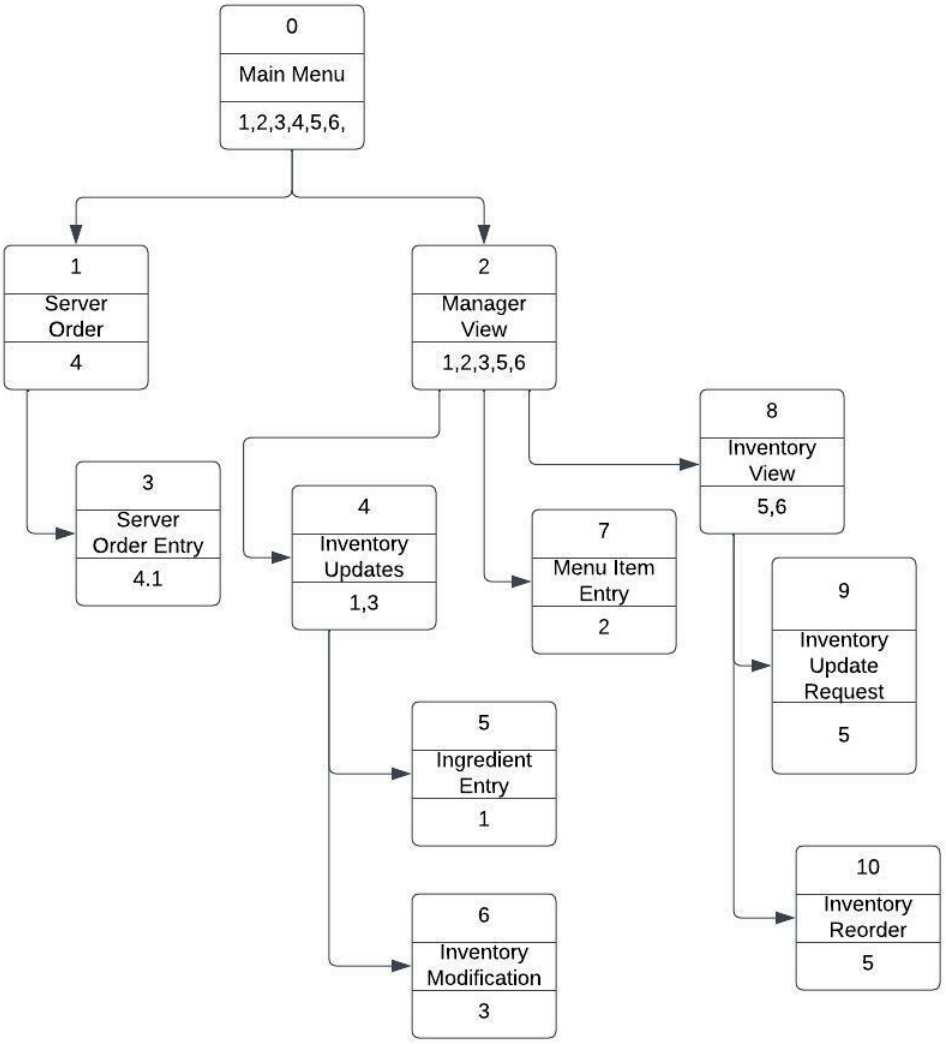
Interface Design

Use Scenarios:

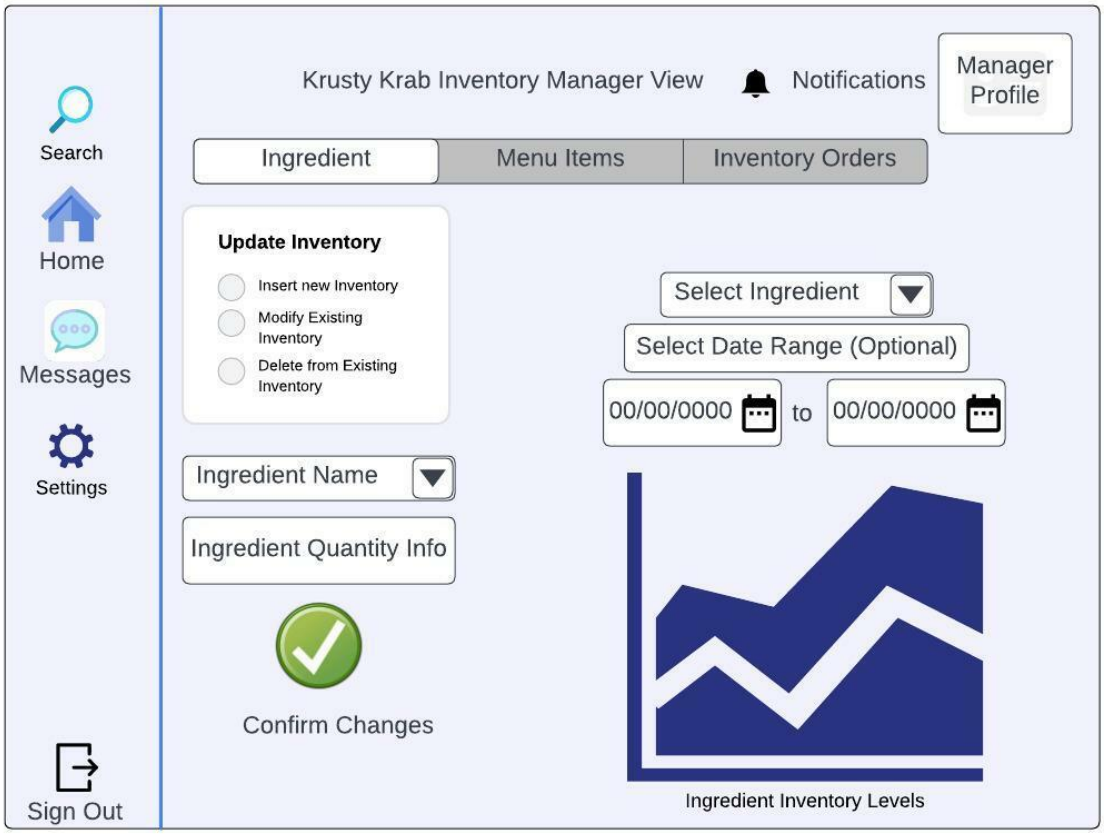
Use Scenario: Manager Entering Inventory Information
Manager wants to input/edit inventory data that the system was not able to update on its own.
1. Manager logs into system 2. Manager selects the inventory icon 3. Manager views the list of items in the inventory and selects the item that needs to be updated 4. Manager updates the inventory information and selects the reason for the manual update (ex: food loss/food expiration) 5. Manager saves the inventory update 6. 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

Use Scenario: Manager Viewing Inventory Levels
Manager needs to view inventory levels in order to confirm that what the system is displaying is accurate to the inventory in the kitchen
1. Manager logs into the system 2. Manager selects the inventory icon 3. Manager views the list of items that are in the inventory 4. Manager selects inventory item that they would like to check 5. Manager is able to view the levels of the inventory item selected and compare it to the actual levels in the kitchen 6. (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 to 8. Manager logs off the system

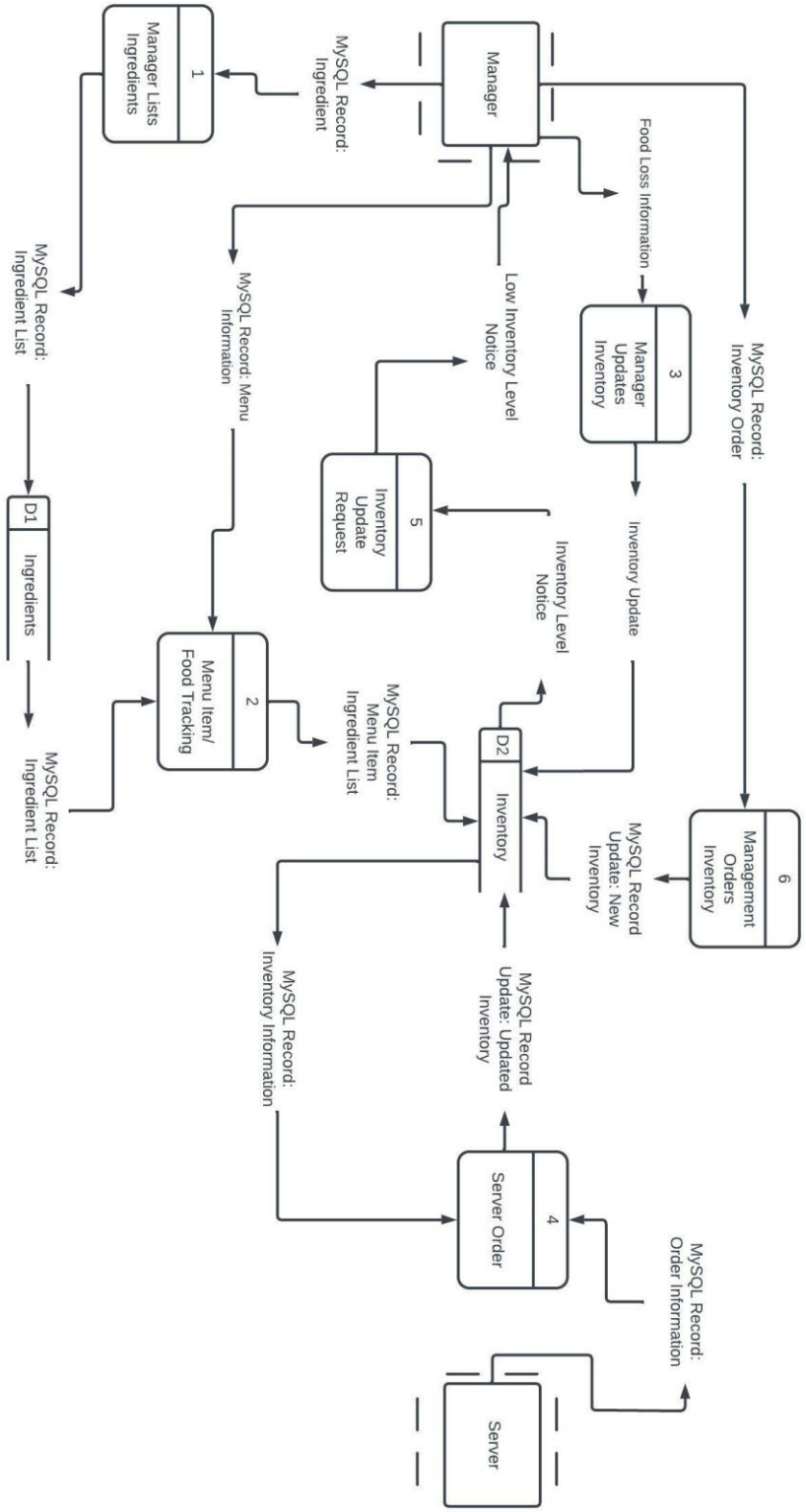
Interface Structure Diagram:



User Interface Prototype: Manager Ingredient Inventory View

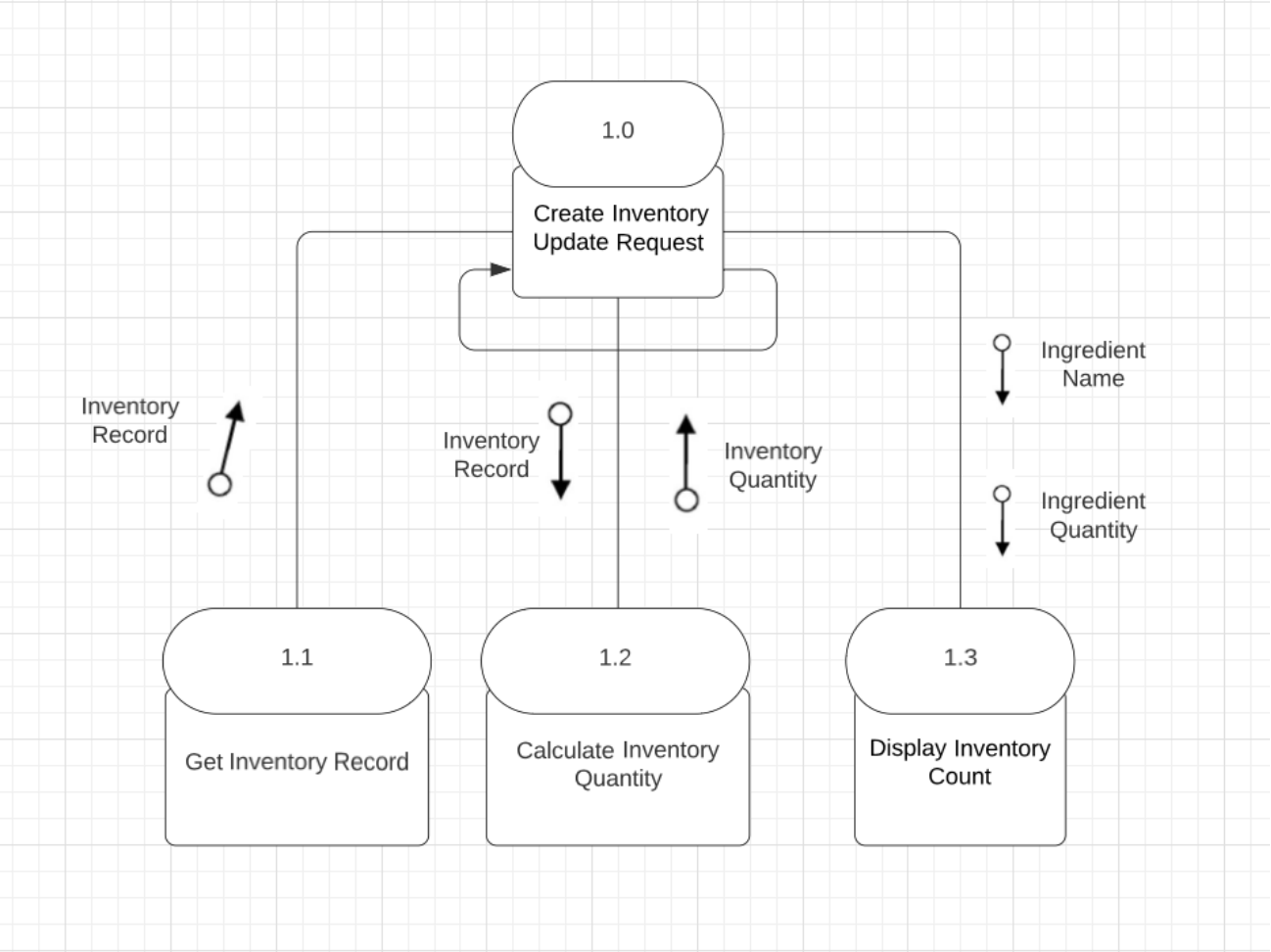


Physical Process Model



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

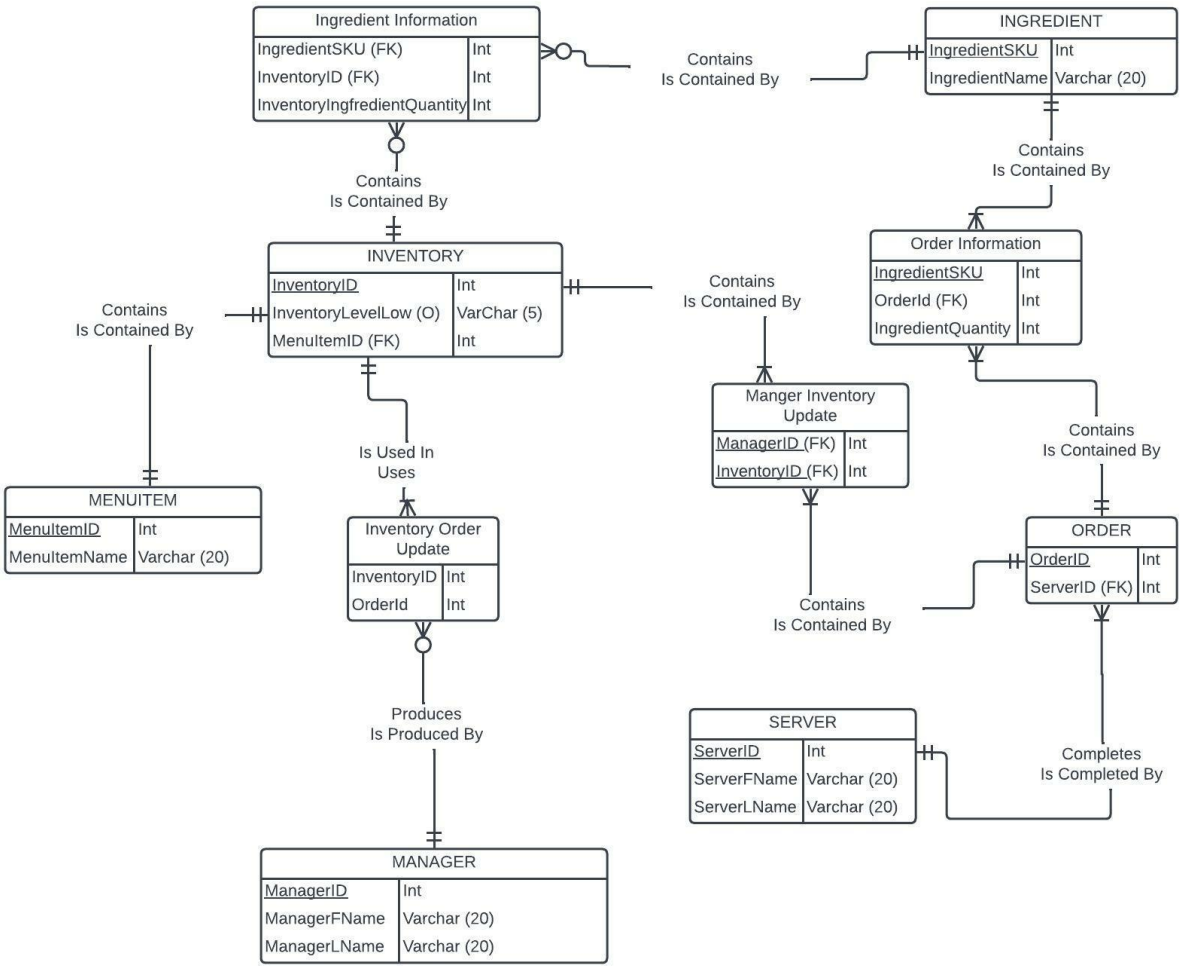
Input Name	Type	Used by	Notes
Order ID	Integer		

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