# Software Requirements Specification

**for**

# MasterChef

**Prepared by Team 17:**

**B. KARTHIK Y21CB024**
**M. LAKSHMI PUJITHA Y21CB031**
**G. NAVEEN L22CB069**

# 1.Introduction

## 1.1 Purpose

MasterChef is a Web application that aims to digitalize the process of various restaurant management operations including ordering and inventory management and POS. This document aims to capture the system requirements and features particularly related to ordering and inventory management to be implemented in MasterChef version, with the later releases on POS (Point of Sale).

## 1.2 Document Conventions

### 1.2.1 Priority Conventions

In this complete document, we will mention priority as “low” or “high” throughout the document. Secondly, priorities are only mentioned in section 4 and section 5 along with detailed description of the requirements. Any high-level requirements mentioned elsewhere are assumed to inherit priorities of their detailed counterparts in section 4,5.

### 1.2.2 Fonts Conventions

Throughout this document, All the user entities are written in capitalizations i.e., first letter as capital. Also, any significant term which has been described in the glossary is made bold and italic in the text. On the other hand, those terms which are significant (but not described in glossary) are bold in text.

## 1.3 Intended Audience and Reading Suggestions

The purpose of this document is to give a detailed description of the requirements for the “MasterChef” software. It will illustrate the purpose, scope and complete description for the development of the system. It will also explain external interface requirements and system requirements as well as non-functional requirements. This document is primarily intended to be proposed to a customer for its approval and for further processing such as additions to be developed in later releases.

Customers can refer to section 3 and 4 for the list of requirements implemented in Version 1.0. Users are advised to refer to the user documentation section for tutorials and online support information.

This document will also be used as a reference for developing and testing Version 1.0 by the development team as well as the testers. The development team can refer to section 2.3 and 2.6 for system level information and section 3 for system features that are to be implemented in this version of the software.

## 1.4 Product Scope

MasterChef is a restaurant management system developed with the intention of automating the day-to-day tasks in a restaurant like order and inventory management, bill generation and taking feedback. This release of the software would deal with these tasks only whereas more areas might be automated in the future versions of this software. The main purpose is to improve the performance of the restaurant by eradicating the daily paperwork. With this system the tasks would be performed in less amount of time and more efficiently. An additional benefit of this software is that during the rush hours the load can be balanced effectively, and restaurants would perform better than usual. In addition to this, human error that occurs when performing tasks manually is also minimized and presence of queues in the system to assign tasks to chefs can reduce congestion in the kitchen. The system would also result in reduction of labor which would result in the reduction of expenses of the restaurant. Feedback module would help the restaurant check for how well they are performing, and monthly/yearly figures can be checked by the billing module to see the trends in sales and profits. These benefits can potentially result in generations of more revenue for the restaurant.

## 1.5 References

Following links and websites were referred during the development of this project:


**a** https://getbootstrap.com/
**b** https://www.djangoproject.com/
**c** https://www.w3schools.com/
**d** http://stackoverflow.com/
**e** https://codewithharry.com/

**2.** IEEE. IEEE Std 830-1998 IEEE Recommended Practice for Software Requirements Specifications. IEEE Computer Society, 1998.


# 2. Overall Description

This section will give an overview of the MasterChef application. The basic functionality of the system as well as its context will be explored in detail. It also describes various kinds of stakeholders and user classes associated with the system and what functionality is available for each class. Finally, the assumptions and dependencies for the system are presented.

## 2.1 Product Perspective

MasterChef app will attempt to replace the traditional manual ordering process and is a new self-contained software system that consists of two parts: one web application and the other is DB browser database. The web application will be used for ordering and interacting with the inventory while the DB browser database will be used for storing the inventory and ordering related information about the food items like pending and complete order queues.

The web application will have two interfaces. Each for Customer, Admin can see/edit the status of available/reserved tables. The customer's interface will consist of a scrollable menu listing available items and their price. When the customer selects some dishes and places the order, it will be stored in "cart" table in DB browser database. The admin's interface will be such that he is notified of the pending order, and he is able to assign it to one of the available queues of chefs who are then able to see the new order on their screens or on a central display in kitchen. After each item/dish in an order is prepared, the order is marked completed through the admin's interface, the hall admin gets notified through his interface. The customer's interface has an option for requesting the bill. Bill is printed through the admin's interface. Admin can change and modify the DB browser database like add new menus or staff, edit current inventory stock etc.

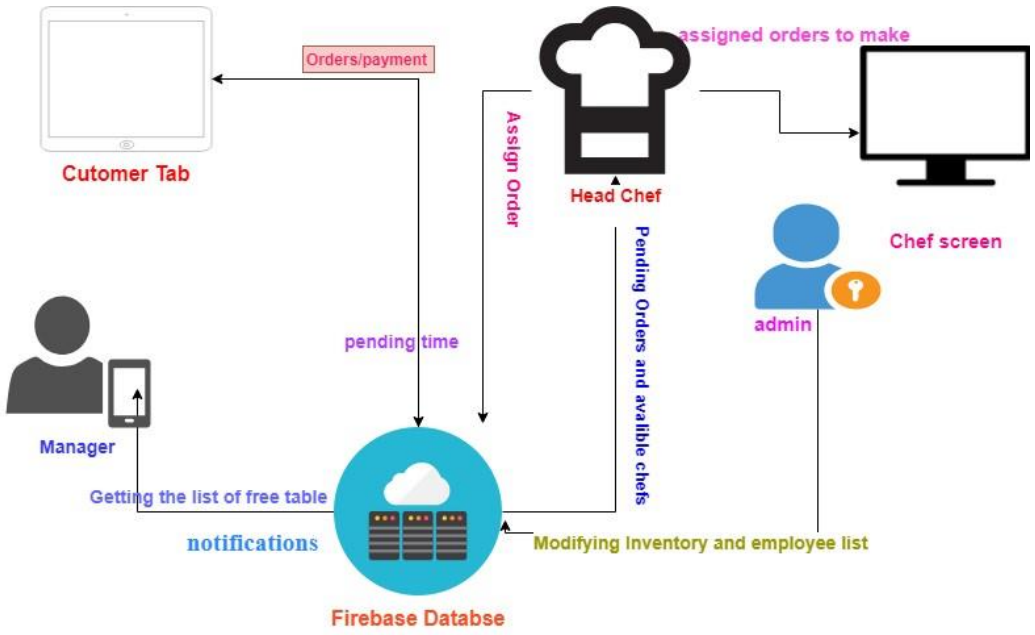



***Fig1 - System Perspective Diagram***

## 2.2 Product Functions

Given below are the major functions that can be performed using MasterChef app. Moreover, a Data Flow Diagram (DFD) for better understanding of the system is also given in Appendix B.

The system will:

- Allow Customers to scroll through the menu and select the dishes he/she wants.
- Allow the Customers to cancel/edit the order any time before its prepared.
- Allow Customers to request for bill.
- Allow Customers to ask for help through the system.
- Assign Admin to assign the dishes in an order to chefs according to their specialties.
- Show dish queues and their status, for Chefs.

- Allow admin to perform CRUD (create, retrieve, update, and delete) operations on Staff Members, Menu Items, and Inventory.
- Allow Admin to mark orders complete.
- Allow the Admin to approve cancellation of dish or order.
- Allow the Admin to mark the bill as paid.
- Notify the Admin when a particular order is complete.
- Allow the Admin to see/edit status of tables reserved and available and their capacities.

## 2.3 User Classes and Characteristics

There are two types of users that interact with our system (See appendix B). Firstly, there is a Customer and Admin. We will provide an interface for Chefs as well through which they look at the status of their order queues, but they will not interact with our system.

### 2.3.1 Customer Class

Customers interact with our system directly to place orders, modify orders, get bill and give feedback. We do not store any information related to customers in our system. The process of order taking starts with customers placing orders and then the other series of events begin.

### 2.3.2 Admin

Admin's job is to manage the inventory and other information related to menu and chefs in the system. Admins will provide its input when he marks the bill as paid when customers pay for their order or get the bill printed. Moreover, he gets a notification whenever a particular order is complete, or some customer asks for help through the system. Admin can also see tables in the hall and their status i.e., empty or filled.

## 2.4 Operating Environment

It is a web application running on a tablet and the tablets are present in a restaurant. Firstly, the admin would be present at the entrance and the system in his tab would show the tables that are empty/reserved. There would be a tab present at every table for customers which they will use to place orders. When an order is placed the server would notify the admin/ kitchen admin who would be in the kitchen. The admin would use his tab which also would have the system installed and would add the order to the appropriate queues of the chefs. The chefs would be present in the kitchen area and their interface would allow them to check the dishes they have to prepare. So, the system is running on various tablets but the operating environment and purpose of each is different for each user.

## 2.5 User Documentation

The software is accompanied by the following materials for further help:

- User Manual Version 1.0
- Online support at www.karthikbatta.me

## 2.6 Assumptions and Dependencies

One assumption about the software is that it will always be used on tablets that have enough resources to run the application. If the tablet does not have enough hardware resources available for the application, there may be scenarios where the application does not work as intended or not even at all.

The application uses DB browser database for online storage of information like orders and menu items that need to be in working state. If the DB browser interface changes the application needs to be adjusted accordingly.

# 3. External Interface Requirements

## 3.1 User Interfaces

### 1. Customer Interface

The customer interface will contain three screens. All three screens will have a consistent layout.

#### 1.1. Place Order

In this screen, the system shows a list of cards (UI Elements) of dishes. Each dish will have an image, its price per serving.

#### 1.2. Timer and Edit/Cancel Order

After confirming the order, the user will be shown a timer screen. In this screen customer will be shown “Edit Order” and “Cancel Order” buttons and a timer which shows the completion time of the order. There will also be a button to request for bill.

### 2. Admin Interface

In the admin interface, the system will show all the current orders in detail i.e., all the dishes of a particular order. In each order, there is a button which will be used to mark that dish cooked. Moreover, when a customer wants to remove a dish

from his order, the system will show admin a notification to approve the removal of the dish.

## 3.2 Hardware Interfaces

Our system can interact with a hardware device directly. We have to connect our system to the bill printer for handing the hard copy of the bill to the customer. For billing module, we may have to use a credit card reader for payment, but the interaction and the results generated by that reader are just entered into our system manually by the user. Moreover, the central screen in the kitchen will be displaying the status of order queues.

## 3.3 Software Interfaces

- For Database services system shall use to DB browser latest version released on October 16, 2023.
- The system will run on a web browser.
- System shall use v4 support library ***Print Helper*** for connecting to the printer and a driver to connect to the kitchen screen.

## 3.4 Communications Interfaces

MasterChef is a web application, and it will communicate with DB browser (which is a storage server provided by Google for android developers). DB browser uses HTTP protocol for communication, so our device will follow HTTP protocol when connecting to DB browser.

# 4. System Requirements

## 4.1 Place Order

### 4.1.1 Description and Priority

The system will give customers the ability to place their orders using our product. It will display a list of available and unavailable dishes in the menu where unavailable dishes will be grayed out. Customer will be able to select multiple dishes and their quantity for a particular order.

**Priority:**
high

### 4.1.2 Stimulus/Response sequences

When user enters the order activity/page, the system initially displays a list of available and unavailable dishes along with their prices.

1. **Stimulus:**
   Customer taps on an available dish.
   **Response:**
   System shows a popup having the name of the dish and price per serving. Also, it contains a text box for the customer to enter the quantity, ADD TO CART button.
   1.1. **Stimulus:**
   Customer taps on an unavailable dish.
   **Response:**
   Nothing happens.
2. **Stimulus:**
   Customer taps on CHECKOUT button at the bottom
   **Response:**
   The system closes the order screen and displays a timer along with a “CLEAR CART” button.

### 4.1.3 Functional Requirements

**REQ-1:** The system will show a list of cards (UI element) of dishes. Each card will have a picture of the dish. Below the dish it shows the price in Rupees per serving.

**REQ-2:** Tap on any of the displayed dish will result in a popup for quantity and a green mark after quantity has been selected.

**REQ-3:** The popup for quantity input will not allow the user to enter letters, negative numbers, or any invalid characters.

**REQ-4:** After completing the order the system will display a timer "Time to complete the order" and it is the total time required to serve the dish keeping in view the previously queued orders. Moreover, it also shows a clear cart order button.

## 4.2 Customer Help

### 4.2.1 Description and Priority

Our system will provide help for the customer if the customer faces issues in using the tab, there will be a 'help' option in his interface. If he faces issues in using the tab or wants some other assistance, he can notify the hall admin through the system.

**Priority:**
high

### 4.2.2 Functional Requirements

**REQ-1:** The system must give Customer the ability to ask for help.

**REQ-2:** When the customer taps on "Call the waiter to manage order". The system must store that the waiter gave the above order.

## 4.3 Chef Order Queue

### 4.3.1 Description and Priority

Whenever a new order is placed by the Customer, the dishes in the orders are classified into categories. The system has the information of specialty of each chef,

it will assign each dish to a corresponding chef and place it in the order queue of that chef. There is a centralized screen in the kitchen which displays queues for each chef. Each item in the queue is labeled with the name of the dish.

**priority:**
high

### 4.3.2 Stimulus/Response sequences

1. **Stimulus:**
   Customer taps the "CHECKOUT" button.
   **Response:**
   Displays the dishes on screen in corresponding admin's queue.

### 4.3.3 Functional Requirements

**REQ-1:** System will classify the dishes in order according to category and add this dish on a particular chef's queue in the screen.

## 4.4 Edit Order

### 4.4.1 Description and Priority

Customer can edit the order any time before the serving. In editing mode, the customer can change the quantity of the food ordered, add and remove dishes from the order.

**priority:**
high

### 4.4.2 Functional Requirements

**REQ-1:**
System must allow the Customer to increase, decrease or even remove the dish from the order any time before serving.

**REQ-2:**
System must remove the dish or decrease quantity of the dish with the approval of admin.

## 4.5 Clear Cart

### 4.5.1 Description and Priority

Our system will also provide an option to cancel the current order. When the customer taps on the “CLEAR CART” button. Customer can cancel the order at any time before serving.

**priority:**
high

### 4.5.2 Stimulus/Response sequences

1. **Stimulus:**
   Customer taps on the “CLEAR CART” button.

   **Response:** Cart was successfully cleared.

### 4.5.3 Functional Requirements

**REQ-1:**
The system must allow the customer to cancel orders at any time before serving.

**REQ-2:**
In cancel order, all the dishes will be presented for approval to the admin. Only approved dishes will be dropped.

## 4.6 Request Bill

### 4.6.1 Description and Priority

Request bill option gives the ability to the customer to ask for receipt and pay the bill.

**priority:**
high

### 4.6.2 Stimulus/Response sequences

1. **Stimulus:**
   Customer taps on the request bill button
   **Response:**

The system prints the bill through a printer. System will add a bill to the hall admin's view with the button that says "paid."

### 4.6.3 Functional Requirements

**REQ-1:** The system must notify the hall admin that a customer has requested for a bill.

**REQ-2:** The system must show the Hall admin the order id, table no and total payable amount.

**REQ-3:** The system must give the ability to the hall admin to change the status of the bill to paid.

## 4.7 Add/Edit/Delete Staff Members

### 4.7.1 Description and Priority

The system gives the ability to the admin to add, edit and delete staff members. Using this feature an admin can add admins.

**priority:**
high

### 4.7.2 Stimulus/Response sequences

Admin screen shows a grid of staff members. There is a button at the top of grid which says Add Member. In the grid after every entry there is a "Edit" and "Remove" button.

1. **Stimulus:**
   Admin taps on "Add Staff" button.
   **Response:**
   System opens another screen with a form.

2. **Stimulus:**
   Admin fills in the information and hits submit.
   **Response:**
   System responds with "<Staff Member> added successfully."

3. **Stimulus:**
   Admin taps on edit button.
   **Response:**
   The system opens a screen with a form prefilled with the existing values.

4. **Stimulus:**
   Admin edits the information and hits submit.
   **Response:**
   System responds with "<Staff Member> edited successfully."

5. **Stimulus:**
   Admin taps on the remove button on a particular row.
   **Response:**
   responds with a "<Staff Name> removed successfully."

### 4.7.3 Functional Requirements

**REQ-1:** Admin should be able to add all necessary information about the staff member.

**REQ-2:** System must give admin the ability to edit information about all staff members.

**REQ-3:** System must give admin the ability to remove staff members.

## 4.8 Add/Edit/Delete Menu Items

### 4.8.1 Description and Priority

The system gives the ability to the admin to add, edit and delete staff members. Using this feature an admin can add admins.

**priority:**
high

### 4.8.2 Stimulus/response sequences

The admin screen shows all the previously added dishes. It also shows an "Add Item" button along with "Edit" and "Remove" with all the available dishes.

1. **Stimulus:**
   Admin taps on “Add Item” button **Response:**
   System opens another screen with a form.

2. **Stimulus:**
   Admin fills the information and hit submit
   **Response:**
   System responds with “<Item> added successfully.”

3 **Stimulus:**
   Admin taps on edit button
   **Response:**
   The system opens a screen with a form prefilled with the existing values.

4 **Stimulus:**
   Admin edits the information and hit submit
   **Response:**
   System responds with “<Item Member> edited successfully.”

5 **Stimulus:**
   Admin taps on remove button on a particular row
   **Response:**
   responds with a “<Item> removed successfully.”

### 4.8.3 Functional Requirements

**REQ-1:** Admin should be able to add all necessary information about the staff member.

**REQ-2:** System must give admin the ability to edit information about all staff members.

**REQ-3:** System must give admin the ability to remove staff members.

# 5. Nonfunctional Requirements

## 5.1 Performance Requirements

The system must be interactive, and the delays involved must be fewer. So, in every action response of the system, there are no immediate delays. In case of scrolling through the

menu there should be a delay of no more than 2 seconds before the next page of menu items is displayed otherwise our people's dining experience is affected. The order should be placed in pending orders and be visible to the admin in less than 1 second before starting the preparation.

Cancel clear / updates must be made with little delay to avoid delivery delay. Also, when connecting to the DB browser server the delay to make a successful connection should be less for effective real time communication.

## 5.2 Safety Requirements

The software is completely environmentally friendly and does not cause any safety violations. The menu will have a flexible font that can be zoomed to not over constrain the eyes.

## 5.3 Security Requirements

There is a need for proper and encrypted login authentication for admin and admin as employee sensitive information as well as inventory should be protected from hacking. Information transmission should be securely transmitted to DB browser without any changes in information to avoid disturbances in orders and billing.

## 5.4 Software Quality Attributes

### 5.4.1 Adaptability:

There can be a change in the menu and information stored in the database about employees and inventory.

### 5.4.2 Availability:

The system is up and running most of the time and the server is not down for more than a few minutes to avoid inconvenience for the customers.

### 5.4.3 Correctness:

The bill generated by the application must be accurate and the orders placed should exactly the same as the same which the user has selected.

### 5.4.4 Flexibility:

If the need arises in the future, software can be modified to change the requirements.

### 5.4.5 Interoperability:

The data is transferred from the customer's end to the admin assigns orders to each chef. This way data is transferred from one part of the system to another.

### 5.4.6 Maintainability:

Software can be easily repaired if a fault occurs.

### 5.4.7 Portability:

Software can be easily installed on devices and would run smoothly according to the requirement.

### 5.4.8 Reliability:

No matter how many orders are placed, the system must give the correct results.

### 5.4.9 Reusability:

The current version can be used in the future versions with more functionality added.

### 5.4.10 Robustness:

Software must have checks to ensure that the items that are not available on the menu cannot be selected and the emails and phone numbers added are all valid.

### 5.4.11 Testability:

All the requirements are fulfilled, response time is low, and all functions are working perfectly.

### 5.4.12 Usability:

Interface of the software must be easy to use. It would not be complex since admins and chefs have a view, so interface should be simple.

## 5.5 Business Rules

1. Admin's interface contains the view of tables that are free, and admin can just view and doesn't provide any input to the system.
2. Once the bill is paid, the admin can mark the order as paid.

3. Admin has access to perform add, delete, update operations on the database for menu, inventory, employees, and no other person can modify the data in the db.
4. Customers can place orders from the list of available items and can update orders and pay the bill.
5. The admin assigns orders to chefs and can update the queues and has an additional functionality of load balance.

# Appendix A: Glossary

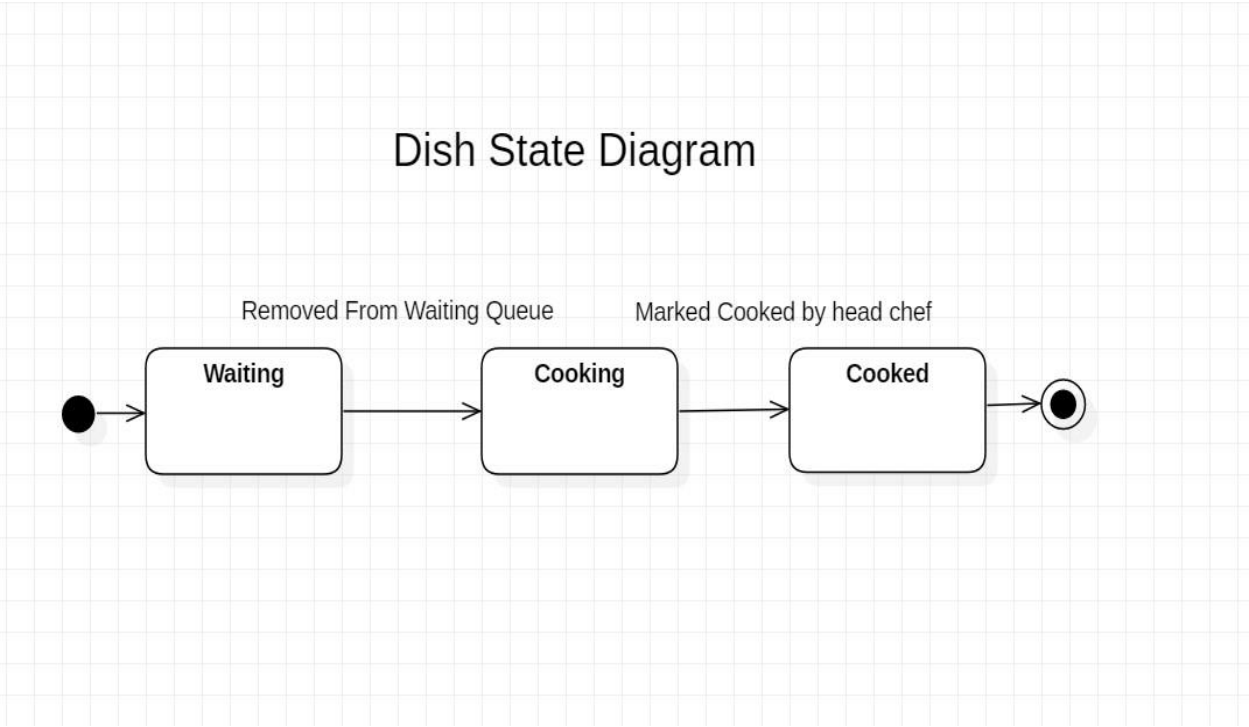
***CRUD:*** *In computer programming, create, read, update, and delete (CRUD) are the four basic functions of persistent storage. Alternate words are sometimes used when defining the four basic functions of CRUD, such as retrieve instead of reading, modify instead of update, or destroy instead of deleting.*

***Print Helper:*** *It is an android library that is used to connect to remote printer and send commands to that printer for printing.*

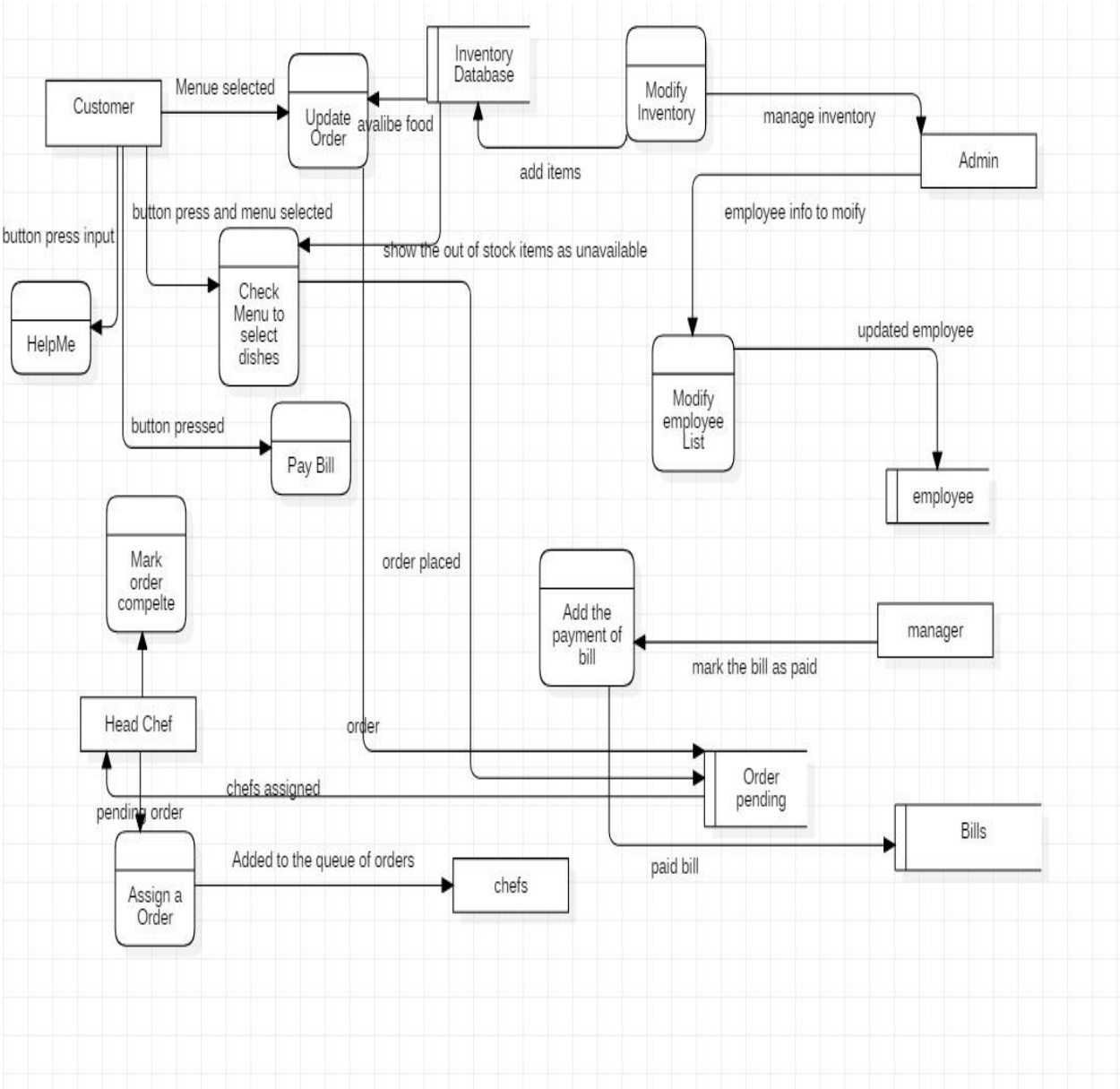
.

# Appendix B: Analysis Models

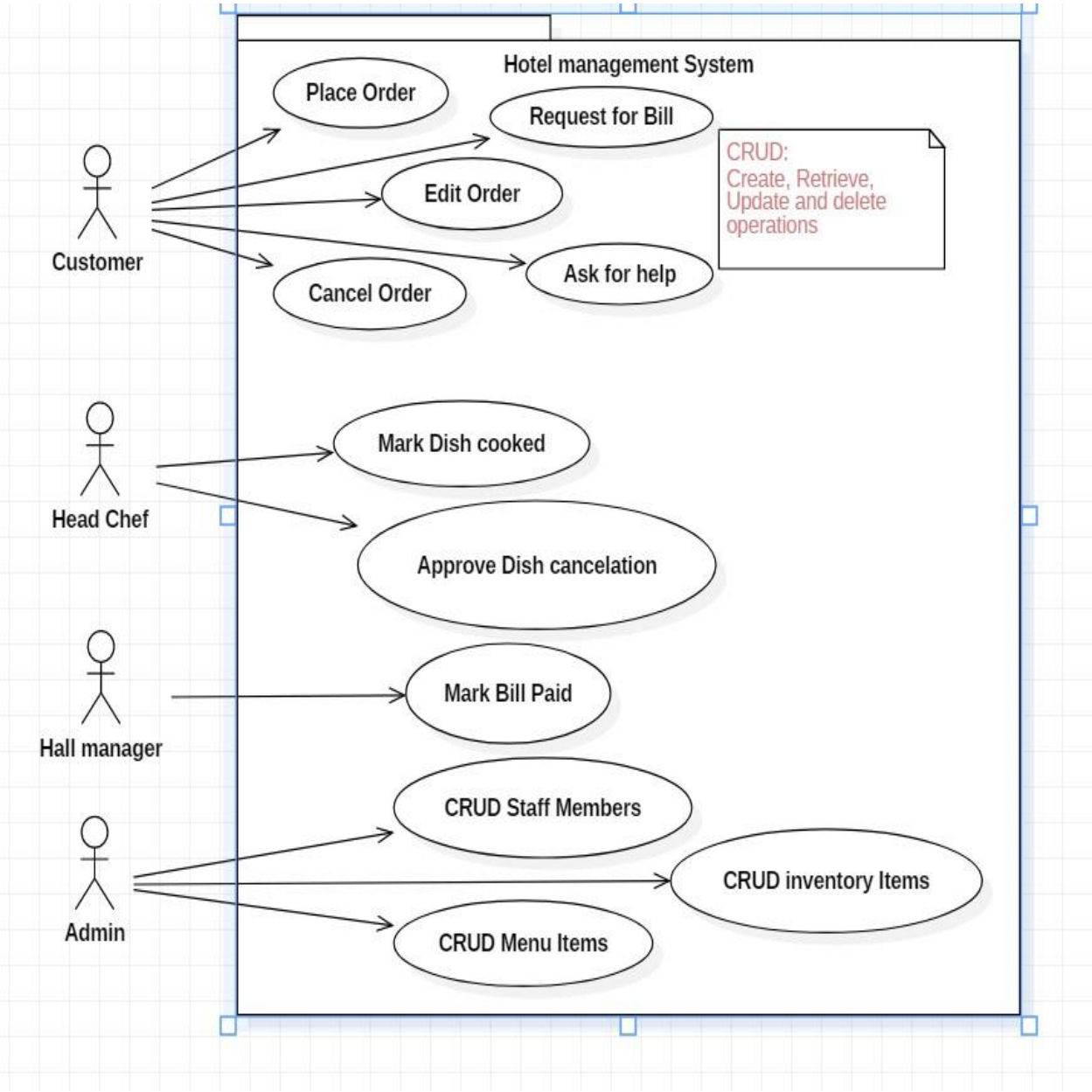
## Dish State Diagram



# Data Flow Diagram



## Use Case Diagram



# Appendix C: To Be Determined List

Weekly sales report and tracking most ordered dish and prioritizing its inventory stocking feature (restocking the items that are most ordered often) is yet to be determined by the client and may need further meetings for elaboration.
*Adding POS (point of sale) features to the application is yet to be determined as well.*