Restaurant Automation System

Software Requirements Specification Document

Team Members:

- Porika Rana Pratap(20JE0692)
- Polavarapu Hemasree(20JE0690)
- Priyanshu Raj(20JE0730)
- Pulipati Sai Nikhil(20JE0735)

Table of Contents

1.0 **Introduction:**

Restaurant Automation System(RAS) is a detailed software for restaurants that helps the organization of restaurants to be handled more efficiently. The market is proliferating and the demand to eat outside is increasing. Restaurants need automation software to become more organized and respectful in the market. Low prices, Online ordering, Easy usage of the software, reservation capability, capability to handle basic accounting, security, and integrity are some of the essential facilities.

The following subsections of the Software Requirements Specifications (SRS) document provide an overview of the entire SRS.

1.1 **Purpose**

The purpose of this document is to provide a detailed description of the Restaurant Automation System (RAS) which will be used to computerize order processing, billing, and accounting activities for a restaurant. The system will also generate statistical reports on sales and assist with supply ordering to minimize excess inventory and ensure the availability of ingredients.

1.2 **Scope**

The system will maintain prices, generate bills, and track ingredient usage for preparation. Purchase orders will be generated daily based on ingredient stock levels. When ingredients arrive, invoice data will be entered and cheques may be printed if there is sufficient cash balance. The system will also generate monthly sales and expenses reports and print a menu card with menu items and prices.

1.3 **Definitions, Acronyms, and Abbreviations**

SRS–Software Requirements Specification

RAS –Restaurant Automation System

2.0 **User Characteristics**

The software can be used by different users. The intended users of the software are as follows:-

● Owner: The owner can effectively monitor sales and statistical reports.

● Manager: He can monitor and change the prices of items and can quickly generate monthly sales receipts.

● Chef: The Chef can update the ingredients and inventory used as he uses them.

● Sales Clerk: He can record items by their item code and check the quantity sold.

3.0 **User Interface requirements**:

The software will be user-friendly and have an option for each type of user.

Every user group has its own portal which is stated in below table:

Page name	**Description**
Sign up page	Fresh candidates can sign up to RAS according to their designation
Login page	Existing candidates will login according to their designation
Manager portal	The manager would get an option to change the price of different items and maintain it in the database.
Chef portal	The chef would get an option to enter the item code used with their quantity.
Owner portal	The owner will get the statistical report about sales of different items in the restaurant.
Sales-Clerk portal	The sales clerk can enter the item code and quantity of items sold and generate a bill.

4.0 **Functional Requirements:**

- Food item prices:
  The cost of every food item is noted, and the manager can change it.
- Sales information:
  When any food item is sold, the item code and the quantity sold are noted, and a bill is generated.
- Generating bills:
  The computer would generate bills when the food items are sold.
- Calculating Threshold value:
  The threshold value for every ingredient is based on the average ingredient consumption for the past three days and assumes that a minimum of two days of stock must be maintained. The threshold value for every ingredient must be calculated.
- Ordering ingredients:
  Ingredients are ordered based on the threshold value for each item and the invoice data regarding the quantity and price is entered.
- Inventory information:
  Whenever the order of ingredients arrives, the information must be added. When there is an order for a food item, the issued ingredients for preparing the food item are entered.
- Ingredients data:
  The invoice data regarding the quantity and price of the ordered ingredients is noted.
- Printing Cheques:
  The computer prints the cheques against the invoice, if there is a sufficient cash balance.
- Monthly sales:
  Monthly sales and expenses data should be generated whenever the manager requests to see them.
- Menu:
  The computer should be able to print a menu card containing menu items and their prices.

5.0 **Non - Functional Requirements:**

- **Portability**:
  The Restaurant Automation Software shall run in any Microsoft Windows environment that contains a database.
- **Scalability**:
  The system should be able to handle an increasing number of transactions as the company grows.
- **Quality**:
  The primary objective is to produce quality software. As the quality of a piece of software is difficult to measure quantitatively, the following guidelines will be used when judging the quality of the software:
  - **Consistency**:
    All codes will be consistent with respect to the style.
  - **Test Cases:**
    All functionality will be thoroughly tested.
- **Usability**:
  The system should provide an interactive user-friendly interface that is easily understandable for all users.
- **Availability**:
  The system should be available at least during the restaurant's operating hours and must be recovered within an hour or less if it fails. The system should respond to the requests within two seconds or less.
- **Dependability**:
  The system should provide consistent performance with easy tracking and updating of records.
- **Maintainability**:
  The software should be easily maintainable and adding new features and making changes to the software must be as simple as possible.
  The RAS is being developed in an object-oriented language such as C++/Java/Python.
- **Security**:
  Only authorized users must access the system and view and modify the data.
  RAS must have these security features:
  1. The password shall be 6-14 characters long.
  2. Passwords must contain digits and special characters.

6.0 **Software and Hardware Requirements**

6.1 **Software Requirements:**

1. A server running Windows server/Linux OS
2. A backend language such as JS, Python..,
3. Front-end frameworks like React/Angular.
4. Relational DBMS such as MySQL, and PostgreSQL.

6.2 **Hardware Requirements:**

CPU: Intel Core i3 or higher
RAM: 4GB or higher
Hard Disk: 250GB or higher
Printer: Thermal receipt printer(for printing bills/invoices for reference)

7.0 **Other Requirements**

As of now there are no extra requirements but in future, there can be any extra features that can be added to RAS.

Restaurant Automation System

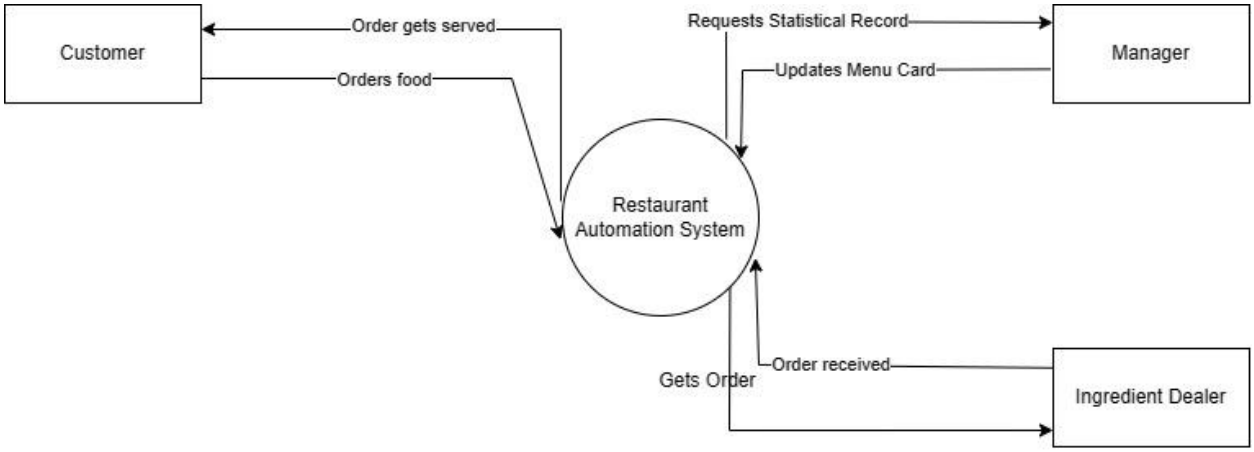
Data Dictionary
And
Data Flow Diagram(DFD)

Team Members:

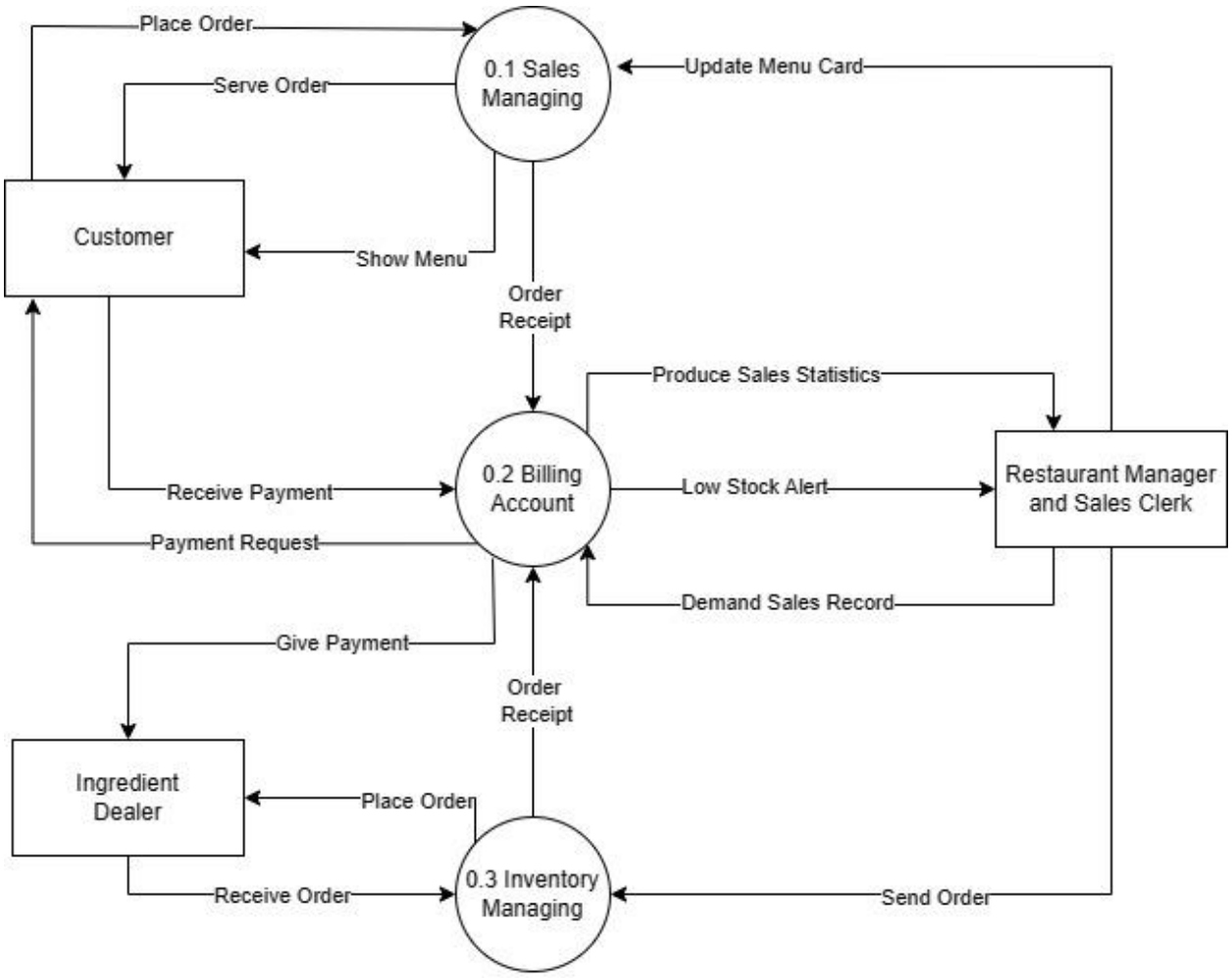
- Porika Rana Pratap(20JE0692)
- Polavarapu Hemasree(20JE0690)
- Priyanshu Raj(20JE0730)
- Pulipati Sai Nikhil(20JE0735)

Date:27-01-2023

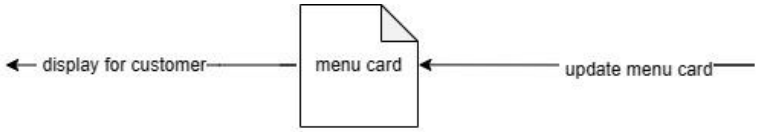
Data Flow Diagram
For Restaurant Automation System


Customer
Order gets served
Orders food
Requests Statistical Record
Updates Menu Card
Manager
Restaurant
Automation System
Order received
Gets Order
Ingredient Dealer

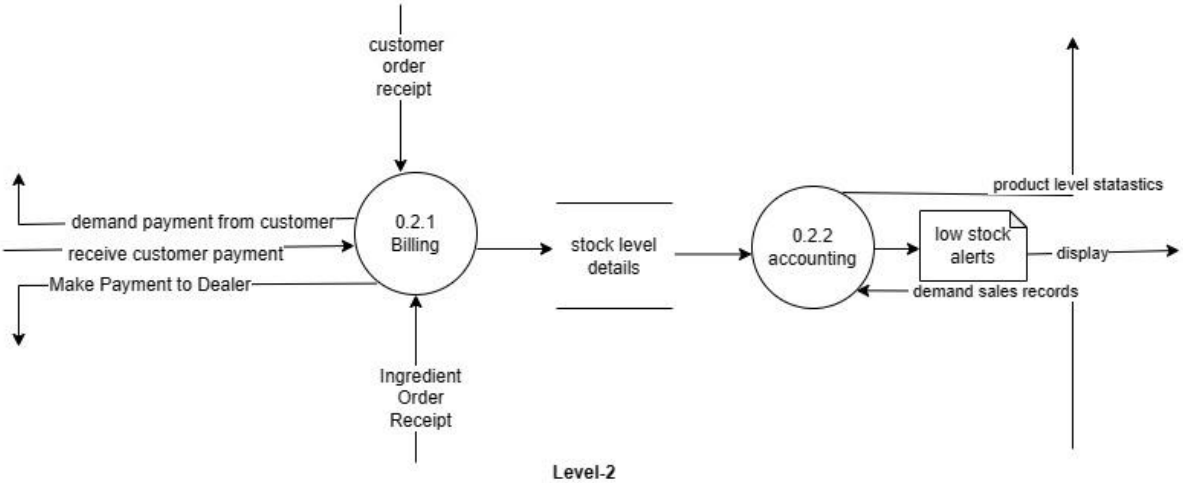
Level 0


Place Order
0.1 Sales Managing
Update Menu Card
Serve Order
Customer
Show Menu
Order Receipt
Produce Sales Statistics
0.2 Billing Account
Restaurant Manager and Sales Clerk
Receive Payment
Low Stock Alert
Payment Request
Demand Sales Record
Give Payment
Order Receipt
Ingredient Dealer
Place Order
0.3 Inventory Managing
Receive Order
Send Order

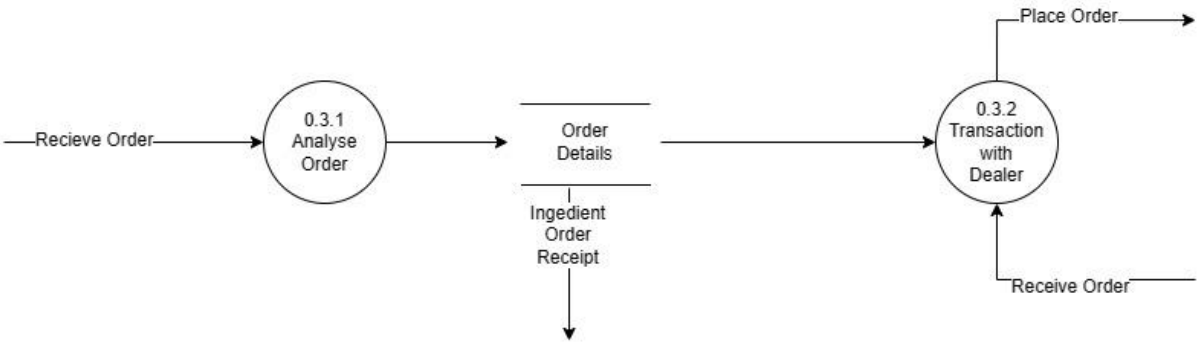
Level 1



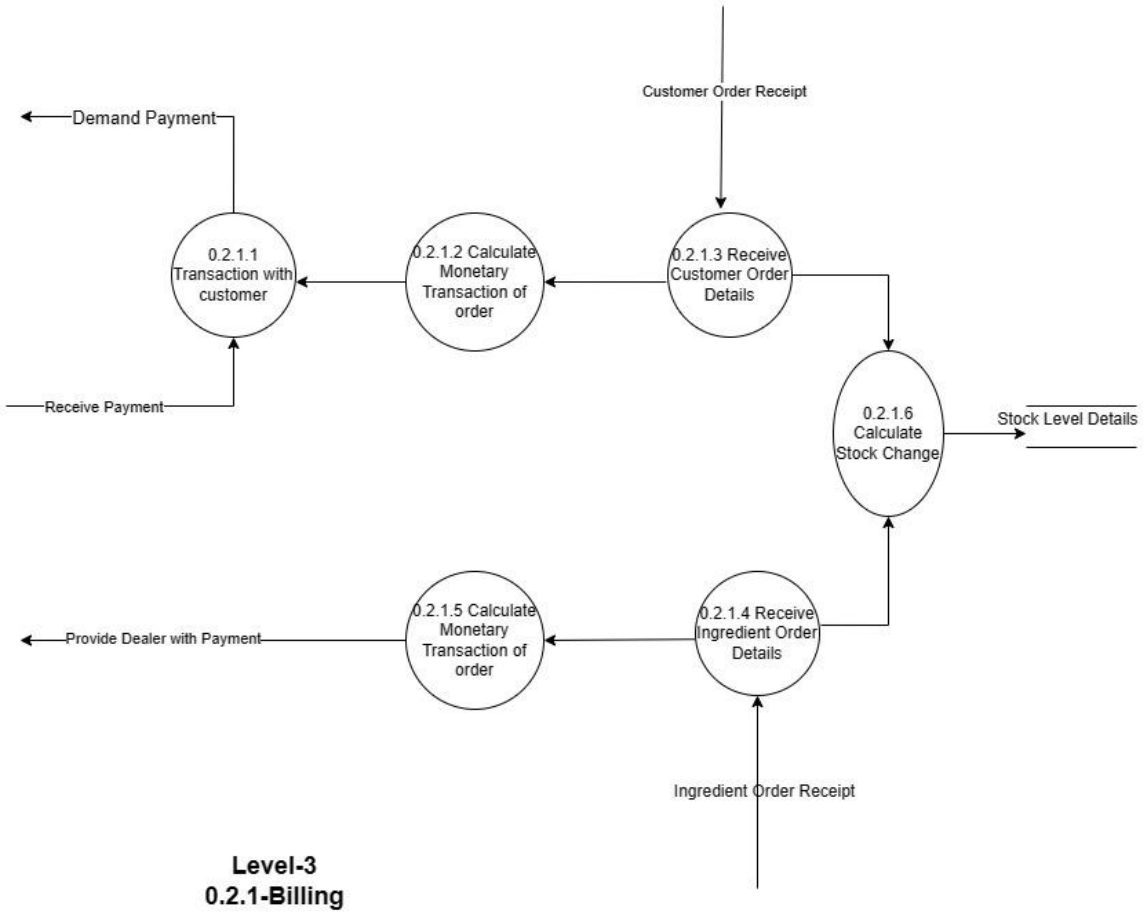
Level-2
0.1



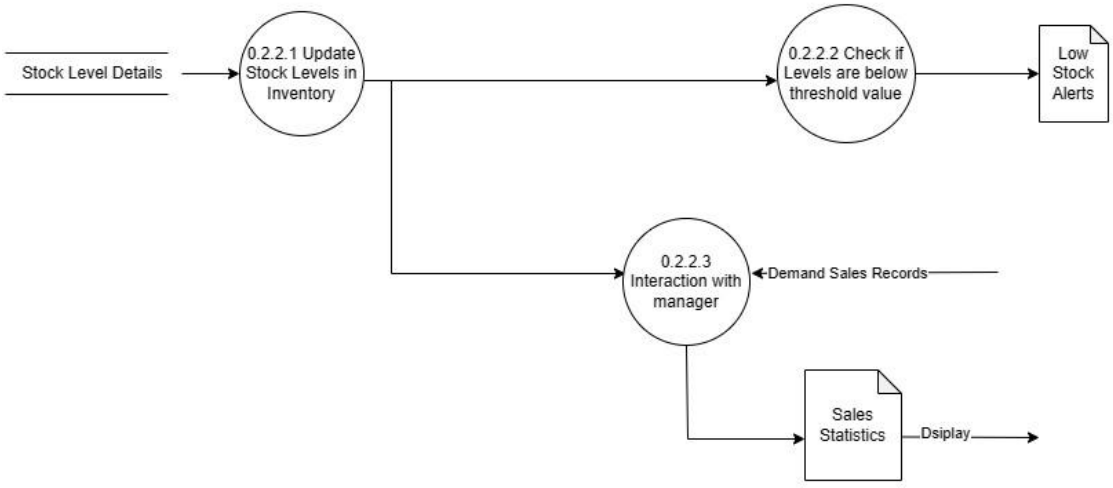
Level-2
0.2



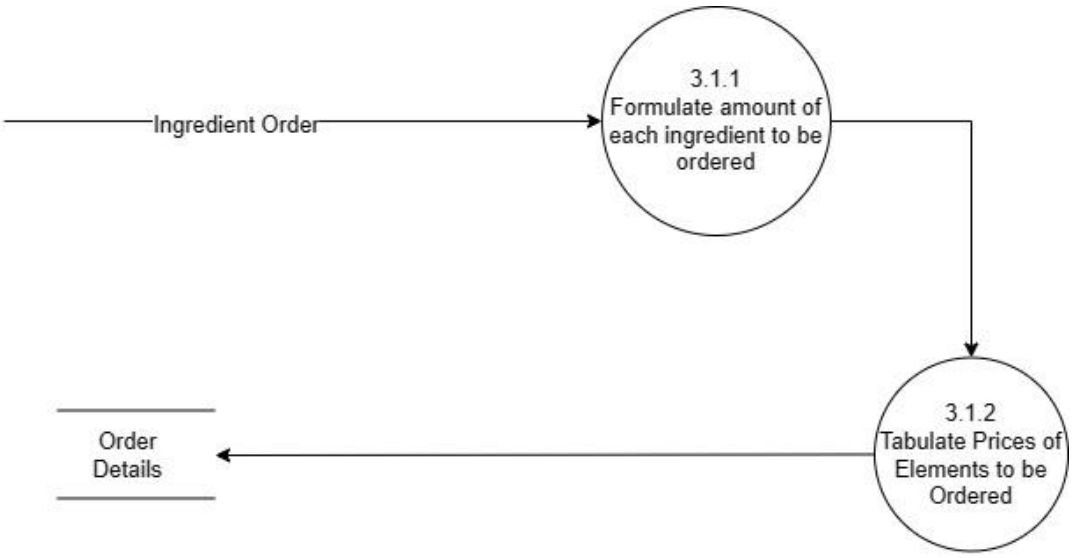
Level-2
0.3



Level-3
0.2.1-Billing



Level-3
0.2.2-Accounting



Level-3
0.3.1-Analyse Order

Data Dictionary for RAS

- Table: Customers
    - Column: CustomerID (Primary Key)
    - Column: FirstName
    - Column: LastName
    - Column: PhoneNumber
    - Column: Email
- Table: Menu
    - Column: MenuID (Primary Key)
    - Column: ItemName
    - Column: Description
    - Column: Price
    - Column: Availability
- Table: Orders
    - Column: OrderID (Primary Key)
    - Column: MenuID (Foreign Key)
    - Column: Quantity
- Table: Employee
    - Column: EmployeeID (Primary Key)
    - Column: FirstName
    - Column: LastName
    - Column: PhoneNumber
    - Column: Email
    - Column: Role
- Table : Purchase Orders
    - Column: Order_ID (Primary Key)
    - Column: Ingredient_ID (Foreign Key)
    - Column: Quantity
    - Column: Date
    - Column: Employee_ID
    - Column: Amount
- Table: Payment
    - Column: PaymentID (Primary Key)
    - Column: Amount
    - Column: PaymentMethod
    - Column: DateTime

- Table : Sales and Expenses Report
    - Column: Report_ID (Primary Key)
    - Column: Date
    - Column: Time_Period
    - Column: Sales
    - Column: Expenses
    - Column: Profit

CUSTOMERS

Customer_ID	FirstName	LastName	PhoneNumber	Email

MENUS

Menu_ID	ItemName	Description	Price	Category	Availability

ORDERS

Order_ID	Menu_ID	Quantity

EMPLOYEE

Employee_ID	FirstName	LastName	Email	PhoneNumber	Position

PAYMENT

Payment_ID	Reservation_ID	Amount	PaymentMethod	DateTime

PURCHASE_ORDERS

Order_ID	Ingredient_ID	Quantity	Date	Employee_ID	Amount

SALES AND EXPENSES REPORT

Report_ID	Date	Time_Period	Sales	Expenses	Profit

Restaurant Automation System

Class Diagram and Use Cases

Team Members:

- Porika Rana Prathap(20JE0692)
- Polavarapu Hemasree(20JE0690)
- Priyanshu Raj(20JE0730)
- Pulipati Sai Nikhil(20JE0735)

Date:10-02-2023

Use Cases

1. Customer ordering the food

Primary actor: Customer
Description: This use case is for customers to see the menu and make the order.
Includes: Order processing
Extend: None

- Waiter logged into the system
- Waiter requests the menu from the system
- System generated menu card
- Waiter shows the menu
- Customer orders the food, may make updates in the order
- Waiter sends requests to the order processing(system).

2. Order Processing

Primary actor: System
Description: This use case is for the system to handle all the work related to processing the given order.
Includes: Food preparation and Payment process use case.
Extend: Generating sales, Expenses reports and Purchase Order.

- Ordered list is sent to the chef.
- Chef prepare the food
- Food collected by the waiter
- Waiter serves the food

3. Food Preparation

Primary actor: Chef
Description: This use case is for the chef to prepare food as per the order.
Includes: None.
Extend: None

- Chef makes a request to inventory about wanted ingredients
- Chef gets required ingredients
- Chef prepares the food

4. Payment process.

Primary actor: System
Description: This use case is for the system to handle payment of the ordered food as per the bill generated based upon inputs by the sales clerk.

- The sales Clerk make a request for an order list from System(order processing)
- Sales Clerk enters the item code and quantity sold in the system
- The system makes the total amount to be paid by giving a payment slip
- The customer pays the bill

5. Generating sales, Expenses reports and Purchase Order.

Primary actor: Manager
Description: This use case is for the system to generate sales and expense reports as well as purchase orders.
Includes: Food preparation and Payment process use case.
Extend: None

- Manager makes a request from sold items server
- Server gives data to the system
- System generates the sales report
- Manager makes a request from the inventory server
- Server gives data to the system
- System generates the expenses report

Restaurant Automation System

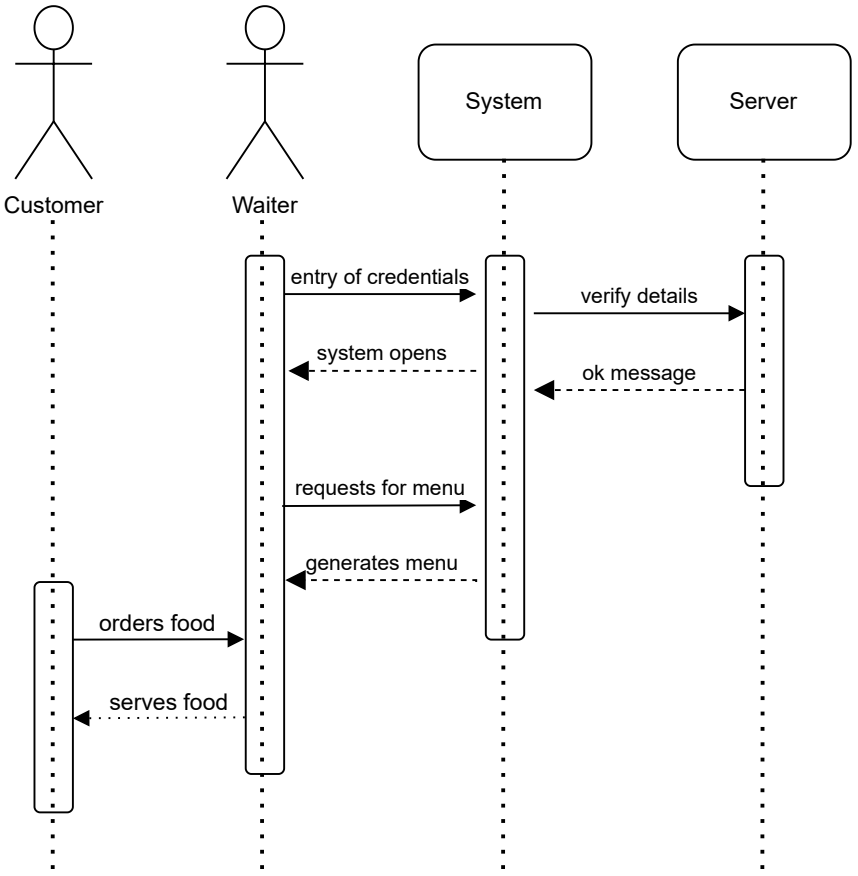
Sequence Diagram

Team Members:

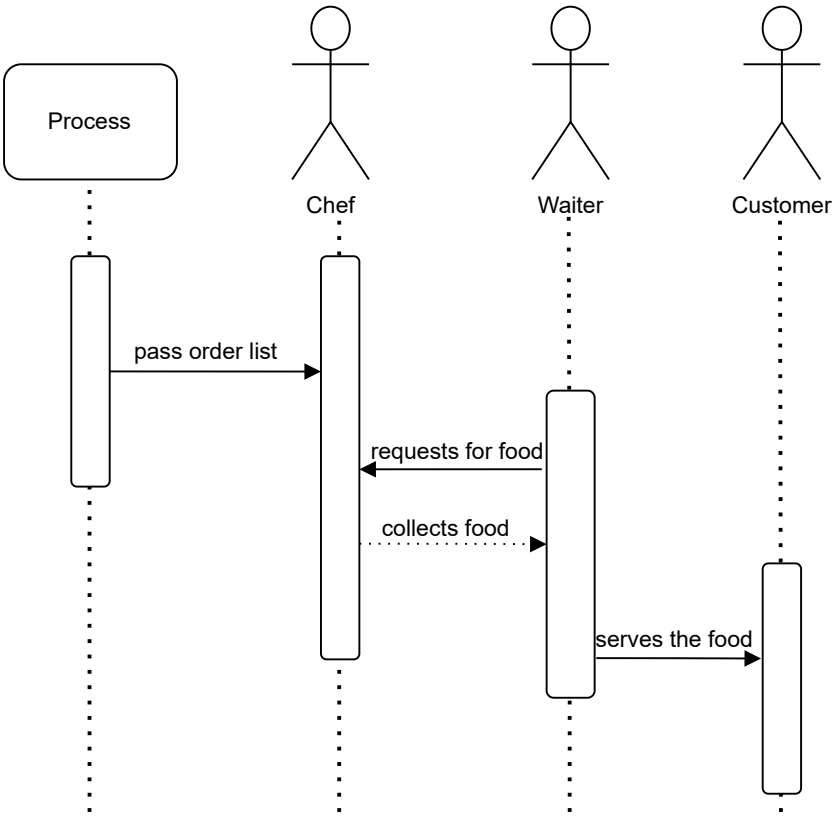
- Porika Rana Prathap(20JE0692)
- Polavarapu Hemasree(20JE0690)
- Priyanshu Raj(20JE0730)
- Pulipati Sai Nikhil(20JE0735)

Date:17-02-2023

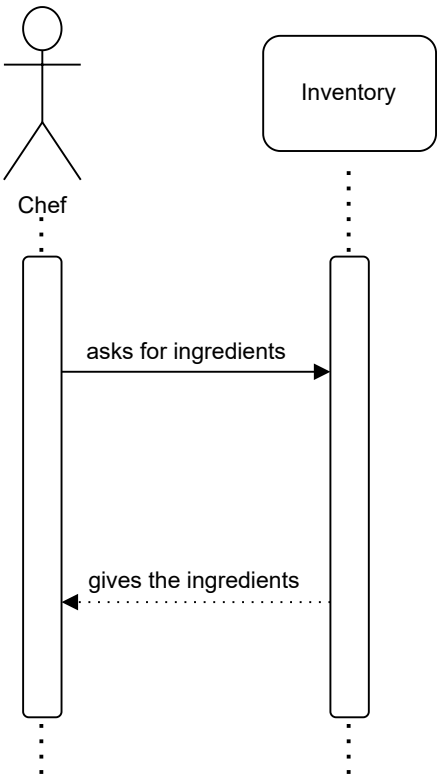
Customer Ordering the food



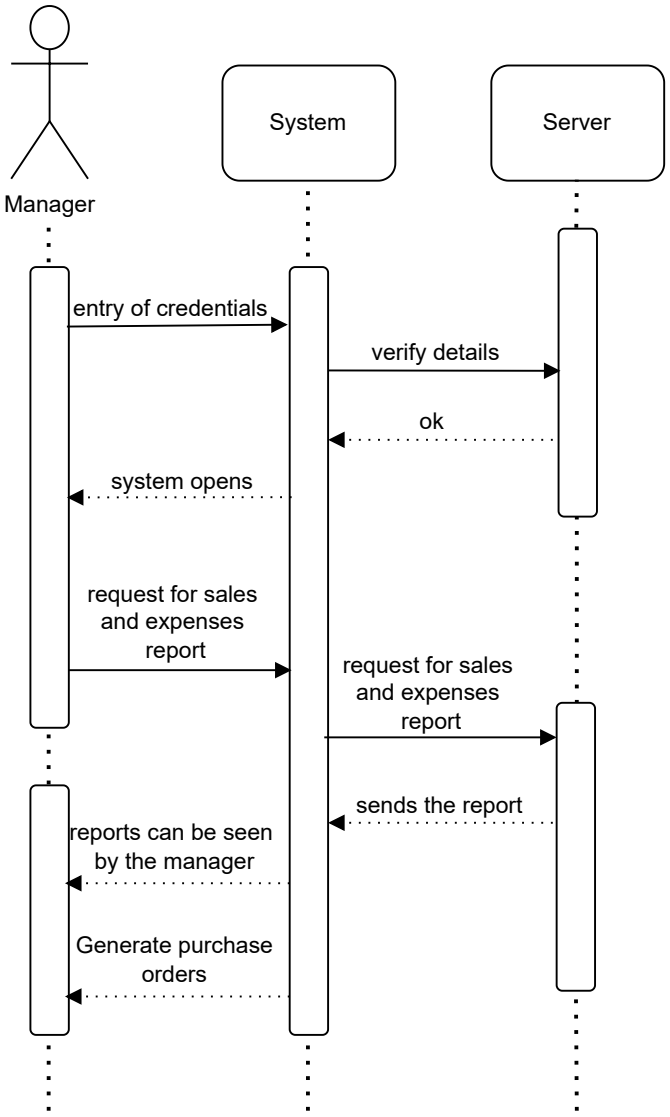
Order Processing



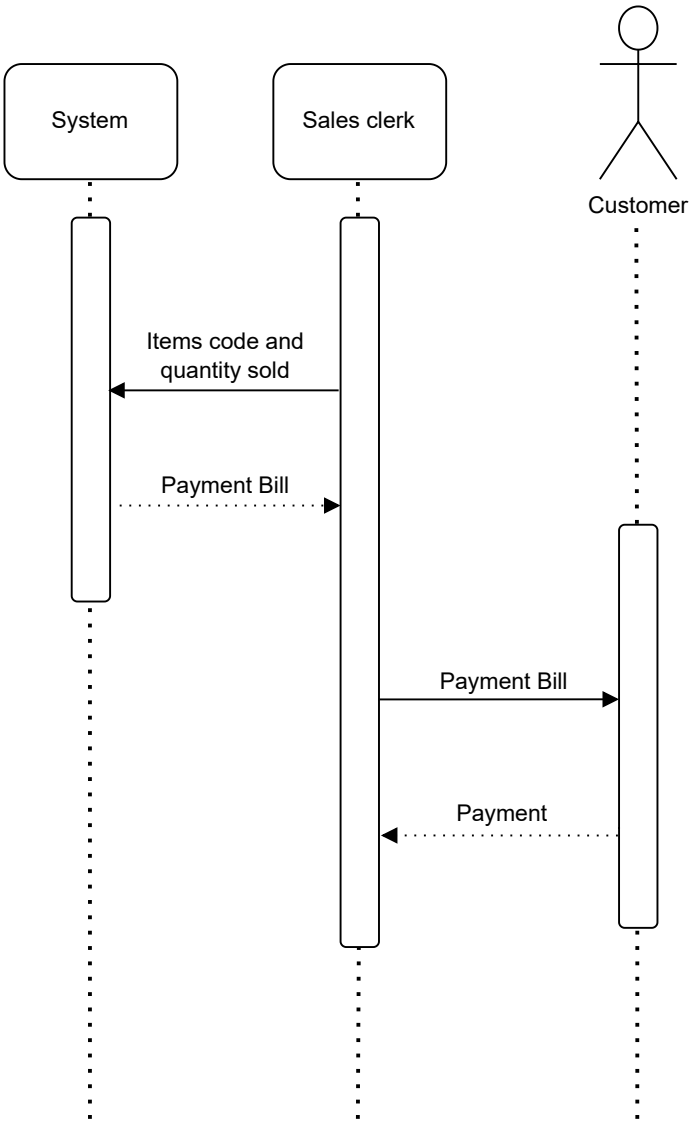
Food Preparation



Payment process



Getting sales and Expenses Reports



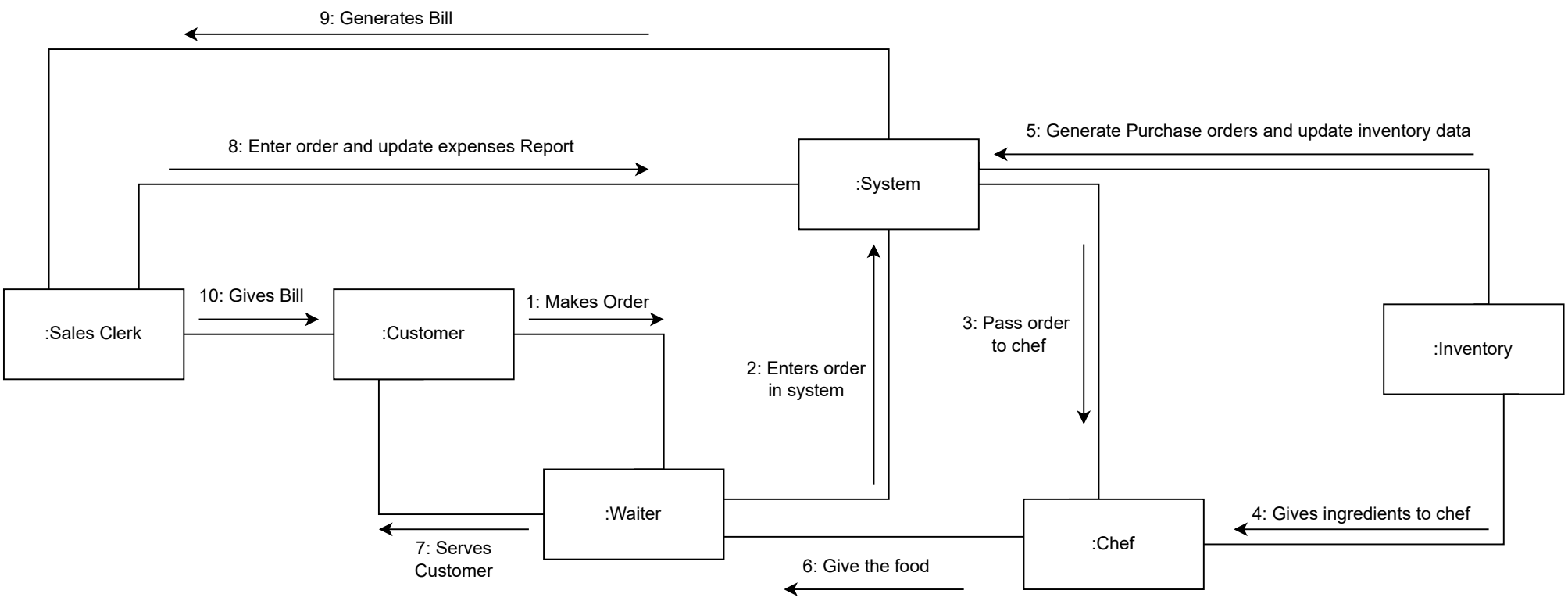
Restaurant Automation System

Collaboration Diagram

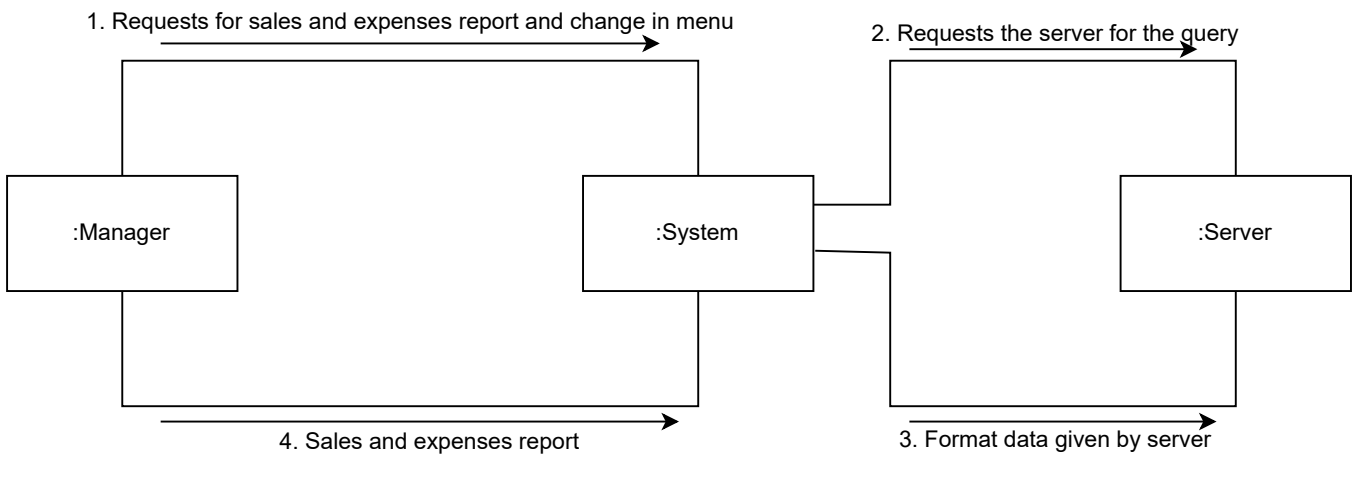
Team Members:

- Porika Rana Prathap(20JE0692)
- Polavarapu Hemasree(20JE0690)
- Priyanshu Raj(20JE0730)
- Pulipati Sai Nikhil(20JE0735)

Date:24-02-2023



Collabration Diagram for Order Processing Use Case



Collabration Diagram for Sales/Expenses Report Generation and Menu Updation Use Case

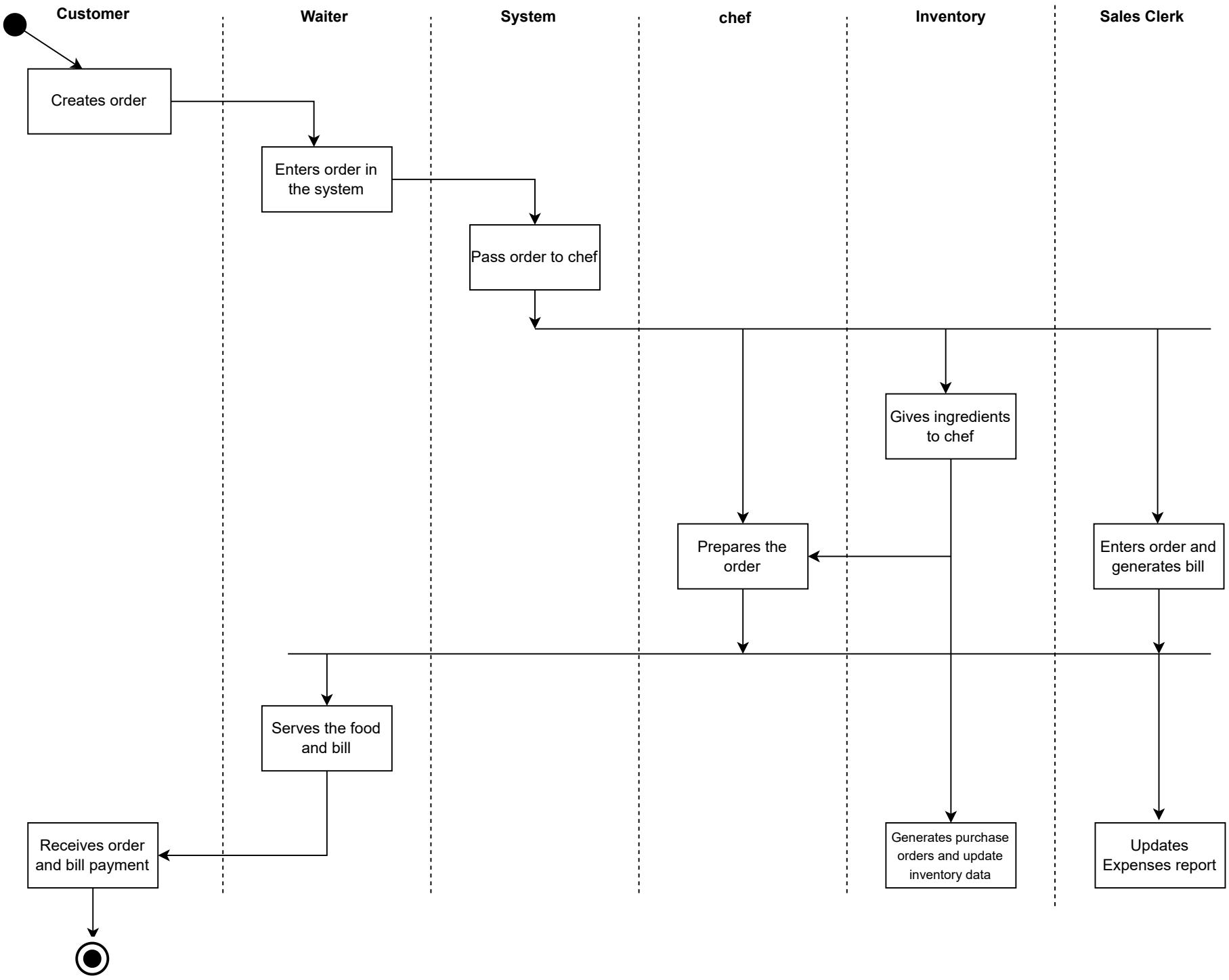
Restaurant Automation System

Activity Diagram

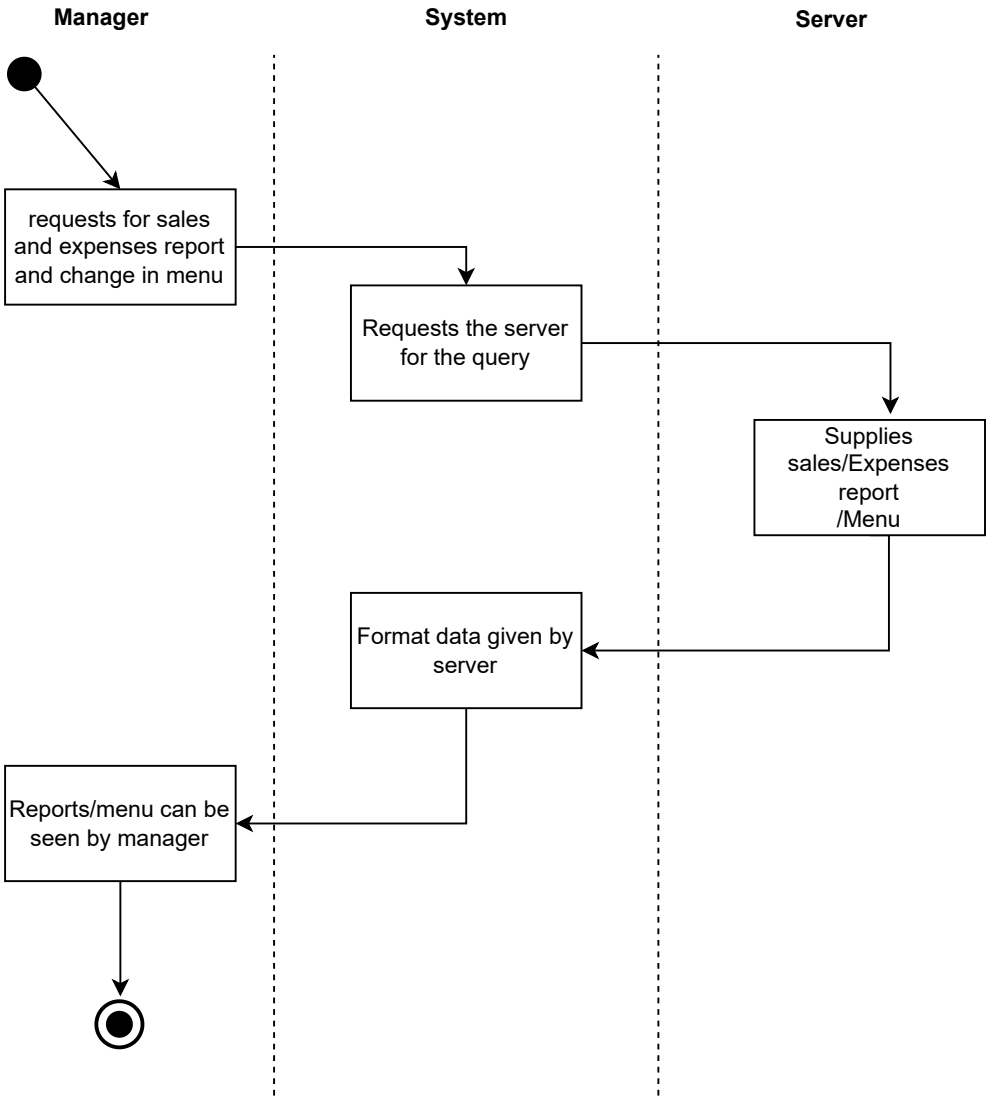
Team Members:

- Porika Rana Prathap(20JE0692)
- Polavarapu Hemasree(20JE0690)
- Priyanshu Raj(20JE0730)
- Pulipati Sai Nikhil(20JE0735)

Date:22-03-2023



Activity Diagram for Order Processing



Activity Diagram for Sales/Expenses Report Generation and Menu Updation