# On-line Restaurant Order and Delivery System Design Report For Online Restaurant Application

Version 2.0

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| Design Report                                | Date: 17/11/2020 |
| Second Phase Report                          |                  |

# **Revision History**

| Date       | Version | Description                                      | Author           |
|------------|---------|--|------------------|
| 13/10/2020 | 1.0     | Creating a login screen                          | Saiful Islam     |
| 18/10/2020 | 1.0     | Specification report for Phase 1                 | Hafsa Nadim      |
|            |         |  | Tanzil Baraskar  |
|            |         |  | Saiful Islam     |
|            |         |  | Daniel Lichter   |
|            |         |  | Dante Betancourt |
| 9/11/2020  | 2.0     | Database setup for system                        | Daniel Litcher   |
|            |         | Function prototypes added to fulfill             |                  |
| 14/11/2020 | 2.0     | specifications                                   | Saiful Islam     |
|            |         | More function prototypes added to fulfill        |                  |
| 17/11/2020 | 2.0     | specifications                                   | Saiful Islam     |
|            |         |  | Hafsa Nadim      |
|            |         | Design report for Phase 2: includes the data     | Tanzil Baraskar  |
|            |         | structure, logic, diagrams, pseudo-code, and     | Saiful Islam     |
|            |         | images to carry out the functionalities dictated | Daniel Lichter   |
| 17/11/2020 | 2.0     | by the specification.                            | Dante Betancourt |

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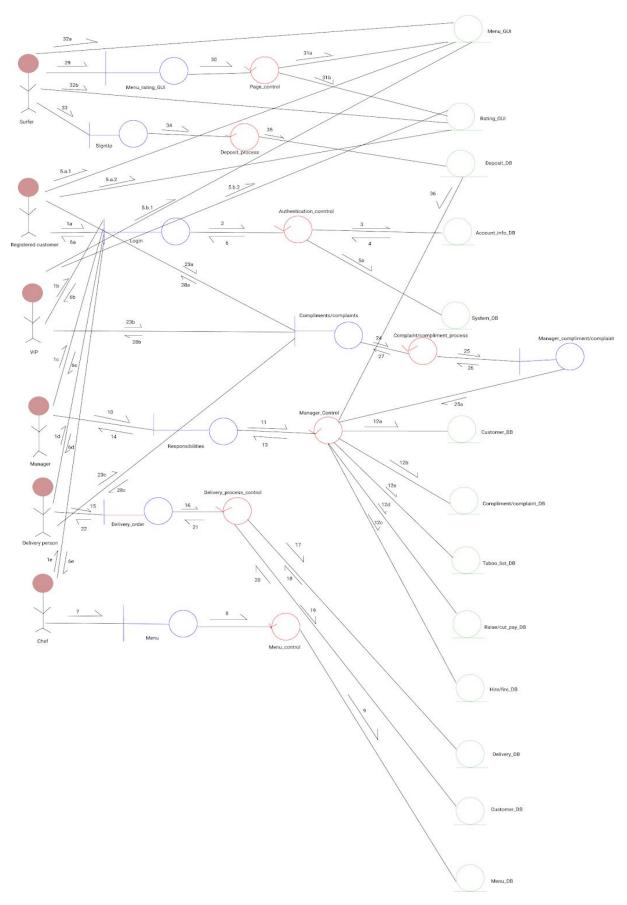
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#### 1. Introduction

The following diagram is a collaboration diagram, which provides an overall picture of the online restaurant system. This report presents the details of the designed system in depth by showing various diagrams, such as Petri-net, collaboration class, and E-R diagrams. The report also contains pseudocodes for every method, demonstrations of major GUI screens of the system, information on group meetings, and more.

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## 1.1 Collaboration Diagram of System



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#### **Description of Numbered Actions**

- 1a. Registered customer login into account
- 1b. VIP login into account
- 1c. Manager login into account
- 1d. Delivery person login into account
- 1e. Chef login into account
- 2. Account is getting processed
- 3. Account is getting checked
- 4. Feedback response
- 5a. If the logging into account is successful, then registered customer, VIP, manager, delivery person, or chef are in the system
- 5.a.1.Registered customer views the menu
- 5.a.2. Registered customer views the ratings
- 5.b.1 VIP views the menu
- 5.b.2. VIP views the ratings
- 6. If logging into account is unsuccessful, then registered customer, VIP, manager, delivery person, or chef are not in the system
- 6a. Registered customer has to sign in again
- 6b. VIP has to sign in again
- 6c. Manager has to sign in again
- 6d. Delivery person has to sign in again
- 6e. Chef has to sign in again
- 7. Chef puts in the description

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- 8. Chef decides the menu
- 9. Menu is getting put together
- 10. Manager manages the restaurant
- 11. Takes on the responsibilities that a manager should have when dealing with customers (registered customer and VIP) and employees (chef and delivery person)
- 12a. Processes customer registration
- 12b. Handles the complaints and compliments
- 12c. Handles firing and hiring of the employees (chef and delivery person)
- 12d. Handles giving a raise or cutting pay for the employees (chef and delivery person)
- 12e. Keeps a list of taboo words
- 13. Mangers receives feedback
- 14. Manager receives feedback
- 15. Delivery person receives the delivery order
- 16. Have the delivery be processed
- 17. Check the delivery details
- 18. Respond
- 19. Delivery details such: there is enough deposit money in the account, and the address of the customer is correct
- 20. Customer receives the delivery
- 21. Delivery is successful
- 22. Delivery order is a success
- 23a. Registered customer compliments/complains
- 23b. VIP compliments/complains

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- 23c. Delivery person compliments/complains
- 24. Compliments/complaints get processed
- 25. Manager is informed about these compliments/complaints
- 25a. Manager takes charge/control
- 26. Compliments/complaints feedback
- 27. Send response to the correct user (registered customer, VIP, or delivery person)
- 28a. Manager's response to registered customer
- 28b. Manager's response to VIP
- 28c. Manager's response to delivery person
- 29. Surfer view/browse the menu/ratings
- 30. Menu and ratings being processed
- 31a. Menu with the top three most popular dishes listed
- 31b. Top three highest ratings appear
- 32a. Surfers view the top three most popular dishes on the menu
- 32b. Surfers view the top three highest ratings
- 33. Surfers apply to be registered customers
- 34. With fixed amount of deposit money
- 35. Account is processed with the fixed amount of deposit money
- 36. Deposit database needs manager control

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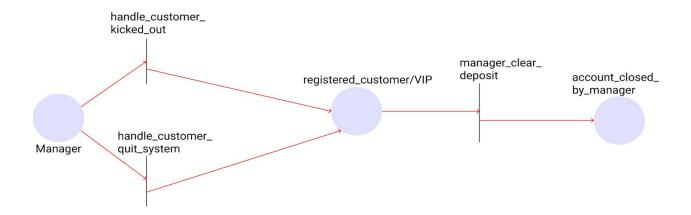
#### 2. Scenarios and Diagrams for All Use Cases

#### A. Manager Diagrams

#### 1. Customer kicked out/quit system (Petri-net)

**Normal Scenario:** If a customer (registered or VIP customer) is kicked out of the system or decides to quit the system, the manager will clear the deposit and close the account.

**Exceptional Scenario:** Customer had no money left in the account before they got kicked out of the system or quit the system.

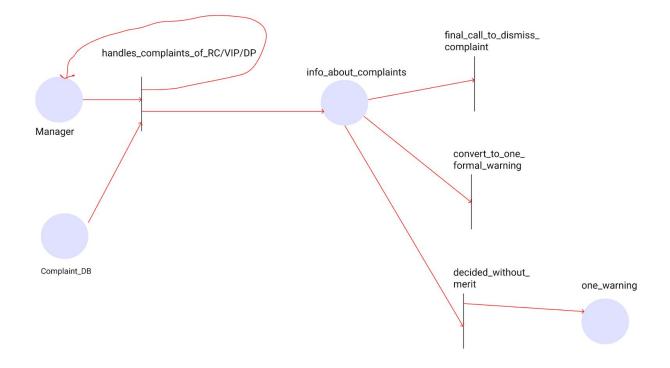


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#### 2. Manager handles complaints (Petri-net)

**Normal Scenario:** The manager handles the customers' complaints (registered customer and VIP) and delivery people. The complaint database contains all complaints. When handling the complaints, the manager will receive information about them and decide whether to dismiss the complaint or convert it into one formal warning. If the manager chooses a complaint made by a customer or delivery person to be without merit, then the respective customer or delivery person receives a warning.

- 1. No warnings are given
- 2. Customer or delivery person already has prior warnings

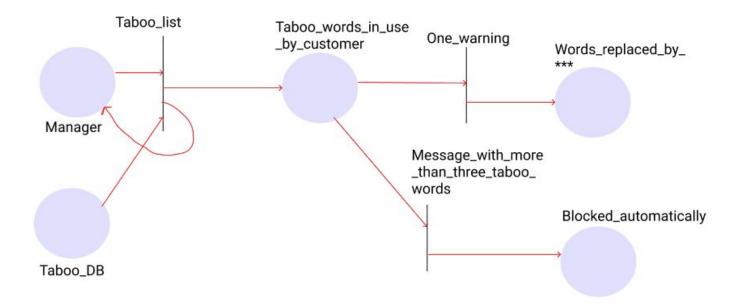


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#### 3. Taboo List (Petri-net)

**Normal Scenario:** The taboo database contains a list of taboo words. Customers will receive one warning automatically, and the taboo words will be replaced with \*\*\*\*. A message with more than three taboo words is blocked automatically.

- 1. If a message includes taboo words that are separated by characters or combined with other words
- 2. If a message includes no taboo words
- 3. If a message contains exactly three taboo words



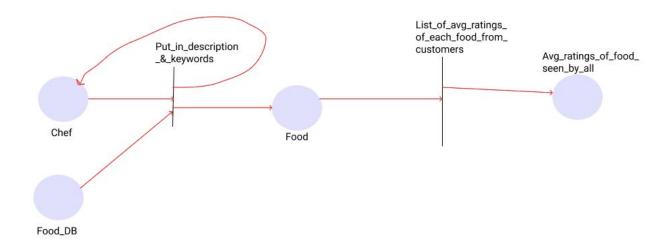
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#### **B.** Chef Diagrams

#### 1. Chef puts in menu items for the users to view (Petri-net)

**Normal Scenario:** Chef puts in the description and keywords for the food. The food database stores information about the menu items. The average ratings for each menu item, written by the customers, are available for any user to view.

**Exceptional Scenario:** The chef forgets to put in the description or keywords of the menu items



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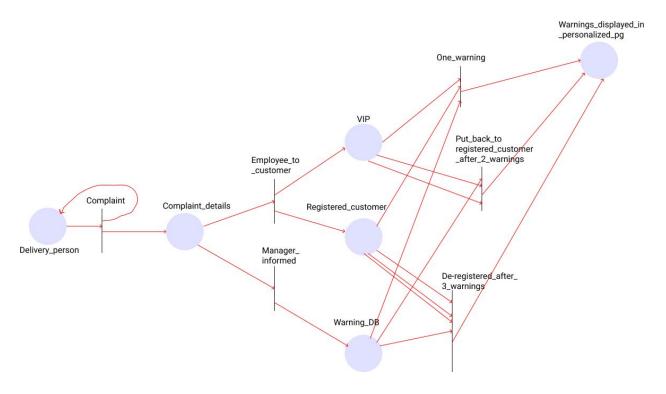
#### C. Delivery Person Diagram

#### 1. Delivery person complains against customers

Normal Scenario: The delivery people make complaints about both registered customers and VIPs. The delivery people's complaints are informed to the manager. VIPs and registered customers receive a warning if the delivery people make a complaint about them. If a VIP customer receives two warnings, then they are back to being registered customers on the system. If a registered customer receives three warnings, then they are de-registered from the system. All these warnings are displayed on the personalized page for each type of customer, and the warning database stores all the warnings.

#### **Exceptional Scenario:**

1. Manager disapproves of the complaint, so no warnings are assigned.



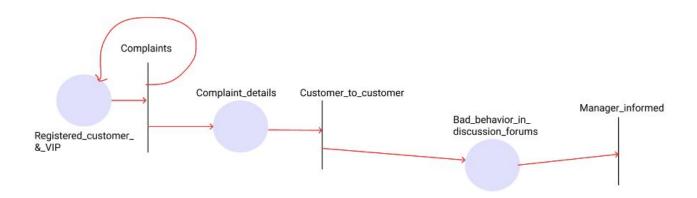
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#### D. Registered and VIP Customer Diagrams

#### 1. Complaints from customers about other customers (Petri-net)

**Normal Scenario:** Customers (registered and VIP) make complaints about other customers that do not behave appropriately in the discussion forums, and the manager is informed.

**Exceptional Scenario:** If there was no bad behavior in the discussion forums and a customer still makes a complaint about it



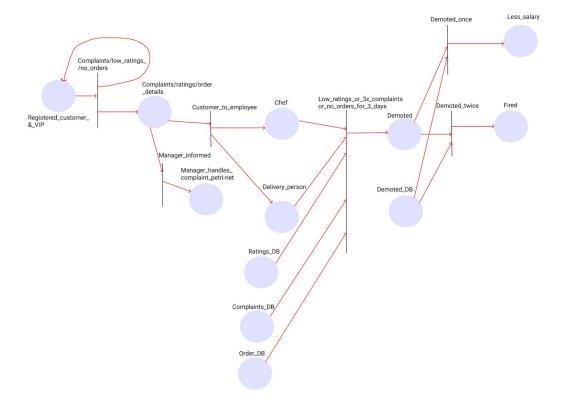
# 2. Complaints, low ratings, or no orders from customers on a menu item (Petri-net)

**Normal Scenario:** Customers can do the following things which will affect the chefs and delivery people: complain, give low ratings, or not order a menu item for three or more days. The manager is informed of all of this, and then he or she deals with the complaints (associated with manager\_handles\_complaint\_Petri-net). If either the chef's dishes or delivery people receive low ratings or three complaints or no order for three days, they are demoted. Three databases called rating, complaints, and order are created for these low ratings/complaints/no orders, and a

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demoted database is created for demotion. If a chef or delivery person is demoted once, they receive less salary. If demoted twice, a chef or delivery person is fired.

- 1. If there are no complaints filed
- 2. If the chef or delivery person receives only one complaint
- 3. If the chef or delivery person receives two complaints
- 4. If the chef or delivery person does not receive orders for one or two days
- 5. If there are four complaints or more

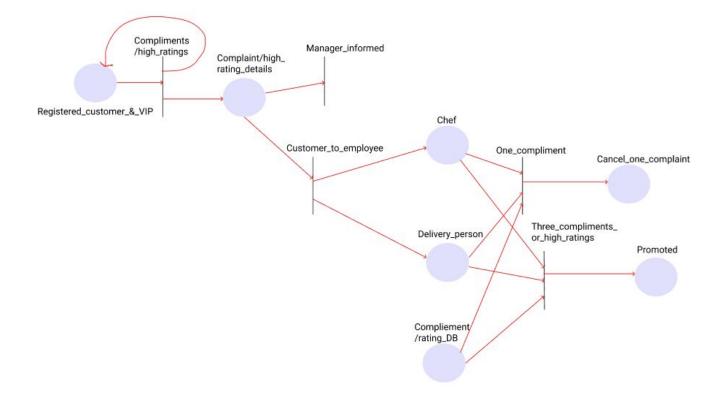


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#### 3. Compliments/ratings from customers (Petri-net)

**Normal Scenario:** The customers (registered and VIP) compliment/give high ratings to the employees (chef and delivery person). These high ratings/compliment details are informed to the manager. The compliment/rating database stores the compliments/high ratings. If the chef or delivery person receives one compliment, one complaint is canceled. If the chef or delivery person receives three compliments or high ratings, they are promoted.

- 1. If registered customer or VIP give two compliments to either the chef or delivery person
- 2. If registered customer or VIP give more than three compliments to either the chef or delivery person

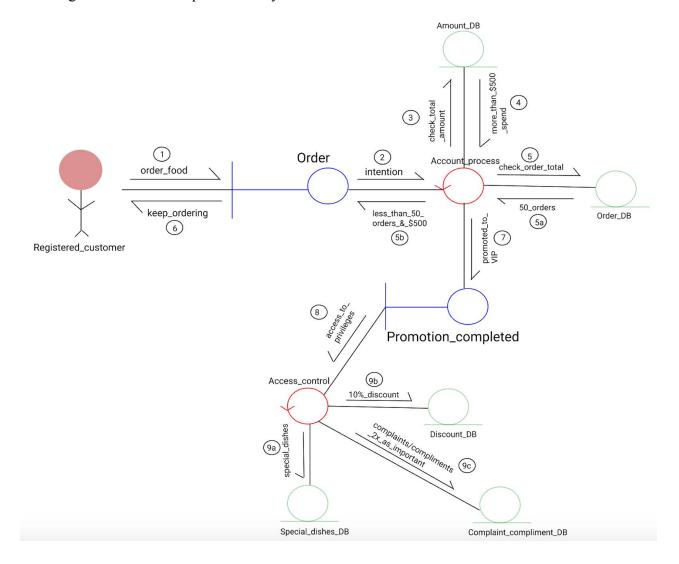


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#### 4. Registered customer to VIP customer

**Normal Scenario:** Registered customers can become VIP customers as long as they spend more than \$500 or place 50 orders. If the registered customers do either of these two actions, they are promoted to VIP users. With this promotion, they have three special privileges: receiving a 10% discount on their ordinary orders, having access to specially developed dishes, and their compliments/complaints being counted twice as important.

- 1. If the registered customer places more than 50 orders
- 2. If the registered customer spends exactly \$500



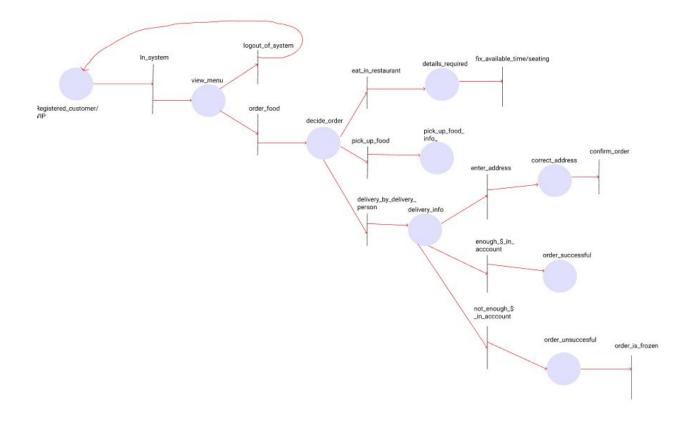
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#### 5. Three menu items upon customer login

Normal Scenario: Customers (registered and VIP) will log in to the system, and once they are in, they view the menu and order their food. Customers have three options: eat food at the restaurant, pick up the food from the restaurant, or have the food delivered to their house by a delivery person. Eating at the restaurant will require customers to fix available time/seating. Picking up the food will require details such as knowing when to pick it up. The delivery option involves information such as the customer's address and makes sure the account has enough money. If the address is correct, the order will be confirmed, and if there is enough money in the account, the order will be successful. If the account does not have enough money, then the order is unsuccessful, and it is frozen.

- 1. The customer enters an incorrect address.
- 2. Attempt to login by a user who has been kicked out of the system or decided to quit the system.

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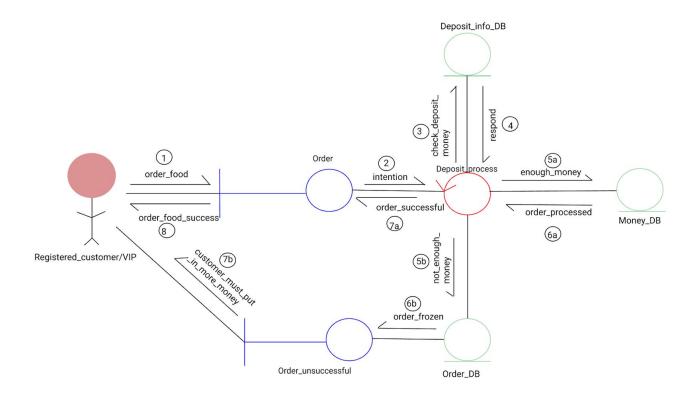


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#### 6. Customer sufficient deposit check (Class diagram)

**Normal Scenario:** After the customer (registered and VIP) orders food, the system will check if the customer has enough deposit money in their account. If there is enough money deposited, then the order will be successful. If the customer does not have enough money deposited, then the order will be frozen, and it will tell the customer to put in more money.

Exceptional Scenario: No exceptional scenario for this

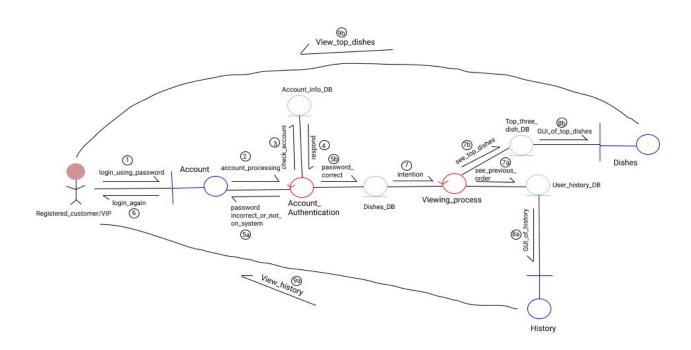


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#### 7. Customers view dishes after correct login (Class diagram)

**Normal Scenario:** Customers (registered customer and VIP) log in using their login information. If the password is incorrect, the customers have to log in again. If the password is correct, customers are in the system and have access to view the dishes. Based on their history of prior choices, customers can view the top 3 listing dishes and view their history.

**Exceptional Scenario:** If a customer who was kicked out of the system tries to log in, the system will not allow the user to enter.



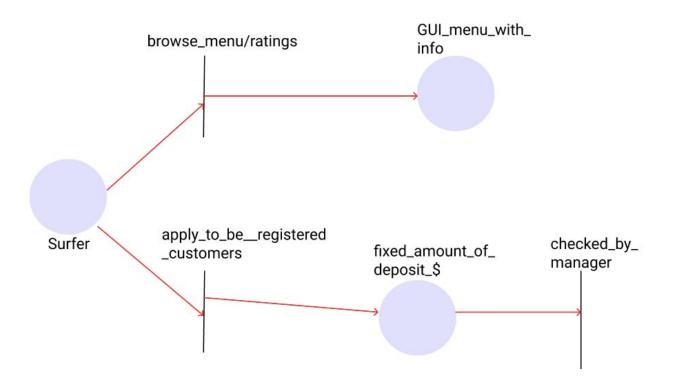
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#### E. Surfer Diagrams

#### 1. Surfer view rating/menu (Petri-net)

**Normal Scenario:** Surfers can browse the menu and ratings. They can also become registered customers by first depositing money and then getting checked by the manager.

- 1. If customers did not rate the food, then there will be no ratings to show the surfers.
- 2. If surfers apply to be customers with wrong credentials, such as credentials that already exist on the system, the process will be rejected.

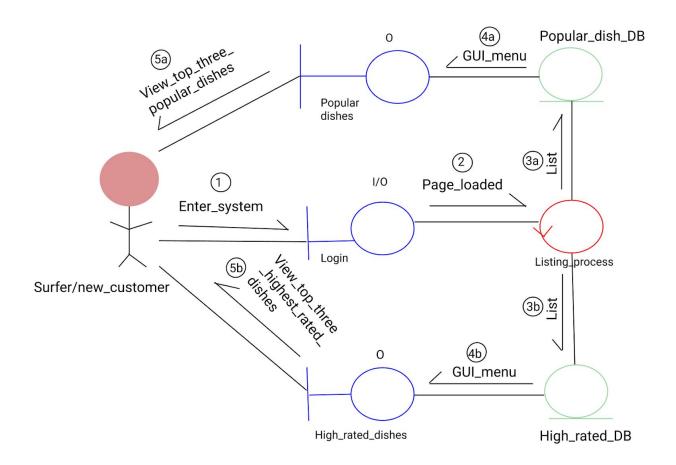


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#### 2. Surfer or new customer view top 3 popular/high rated dishes

**Normal Scenario:** When surfers or new customers enter the system, they have the option to view the top three most popular dishes and the top three highest-rated dishes.

**Exceptional Scenario:** 1. If there are no orders made by customers, there will be no ratings and no popular dishes to show surfers/new customers

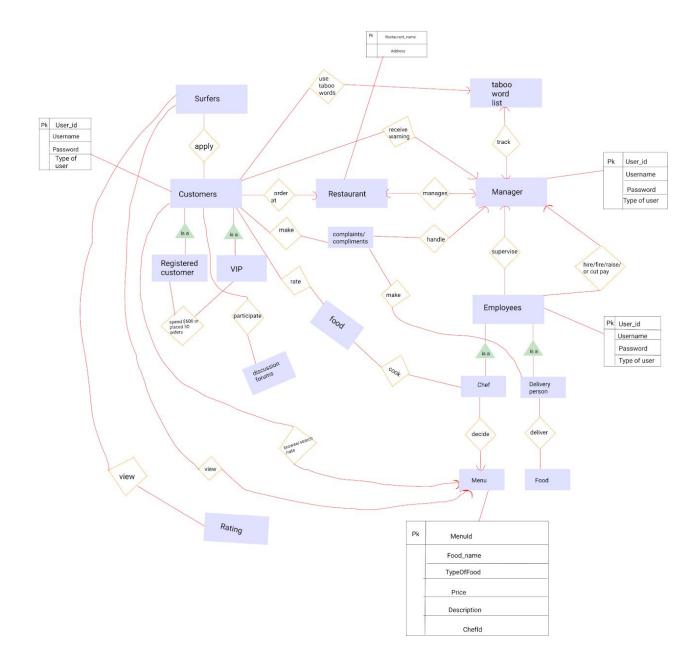


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### 3. E-R Diagram

This E-R diagram shows the main relationship between the entities of the entire system.

It also includes attributes and keys for each class.



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#### 4. Detailed Design

This section includes the pseudo-code for every method, which delineates the input/output and main functionalities.

#### Manager

#### 1. Taboo list

#### 2. Manager checks customer quit/ kick out system

```
def customer_outOf_System (user_id):
    if( vip or registered customer quit system):
        Manager_handles = clear.deposit
        clear.deposit = close.account(user_id)
    elif (vip or registered customer kicked out of system):
        Manager_handles = clear.deposit
        clear.deposit = close.account(user_id)
```

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#### 3. Manager handle complaints

```
def manager_recieveComplaints(user_id):
    if(manager receive complaints):
        final_call = dismiss.complaint
    elif:
        warning = give.warning
        inform both parties
    elif:
        withoutMerit = give.warning
```

#### Chef

4. Chef puts description of food

```
def chef_updates_menu ():
    chef = add.description_food // chef adds description of the food
    update.food_db // database of food is updated
```

5. Demote chef

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```
def chef_demote(user_id):
    if chef_rating low:
        demote_chef.user_id = less_salary
    else:
        chef_complaint = 3:
        demote_chef.user_id = less_salary
    else:
        chef_order = 0:
        demote_chef.user_id = less_salary
```

#### 6. Demote chef twice

```
def chef_demoted_twice(user_id):
    chef_demote() // call the chef_demote function
    if (chef_demote = =2):
        employee.fire = user_id.chef_fire
```

#### **Delivery Person**

7. Delivery person complaint

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```
def deliveryPerson_complaint(user_id):
    deliveryPerson.complaint = manager.informed
    if (deliveryPerson complaint on VIP one time):
        VIP.warning = update.warning_db
        elif (deliveryPerson complaint on VIP two times):
            VIP.warning = update.warning_db
            VIP_to_customer(user_id) // Call the function to demote to registered
customer

if (deliveryPerson complaint on registered customer one time):
            R_customer.warning = update.warning_db
            elif(deliveryPerson complaint on registered customer three times)
            R_customer.warning = update.warning_db
            deregister_customer(user_id, account_db) //call the function to deregister
```

#### 8. Demote Delivery Person Salary

```
def deliveryPerson_demote(user_id):
    if delivery_rating low:
        demote_deliveryPerson.user_id = less_salary
        update.complaint_db
        else:
        deliveryPerson_complaint = 3:
            demote_deliveryPerson.user_id = less_salary
            update.complaint_db
        else:
        deliveryPerson_NoDeliveryOrder = 0:
            demote_deliveryPerson.user_id = less_salary
            update.complaint_db
```

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#### 9. Demote Delivery Person

```
def deliveryPerson_demoted_twice(user_id):
    deliveryPerson_demote() // call the chef_demote function
    if (deliveryPerson = = 2 ):
        employee.fire= user_id.deliveryPerson_fire
```

#### **Customer (VIP and Registered Customers)**

10. Promote registered customer to VIP

```
def customer_to_VIP(user_id):
    user_id.setR_customer(VIP)
    update_customerPosition (user_id)
```

11. Demote VIP to registered customer

```
def VIP_to_customer(user_id):
    user_id.setVIP(R_customer)
    update_customerPosition (user_id)
```

12. De-register registered customer

```
def deregister_customer(user_id):
    if(manager deregisters customer account ):
        user_id.deregistered = user_id.delete
        update.account_db
```

13. Registered customer condition for VIP

```
def r_customer_promote (user_id, order_data, money_spent):
```

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```
if (R_customer.order_data = 50):
     customer_to_VIP(user_id)

else if (R_customer.money_spent > 500_dollars):
     customer_to_VIP(user_id)
```

#### 14. Customer Ordering Food

```
def customer_order (user_id):
    "" displays menu"

    if(customer account = True):
        update.account_db

    display options for ordering food:
        if(customer wants to eat in):
            user_id.eatIn = user_id.fix_time_seat
        elif (customer wants to pick up food):
            user.id_pickUp = user_id.getUpdates
        elif(customer wants to get food delivered):
            food_delivery = user_id.getAddress
```

#### 15. Customer Complaint

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```
def customer complaint (user id):
       customer.complaint = manager.informed // manager is informed when complained
       if (customer complained on employee first time)
               update.complaint_db
               if(complaint on chef):
                      chef demote() // call this function to demote chef
               if(complaint on deliveryPerson):
                      deliveryPerson_demote // call this function to demote deliver
person
       if (customer complained on employee two times):
               update.complaint db
               if (complaint on chef):
                      chef demoted twice() // call this function to fire chef
               if (complaint on deliveryPerson two times):
                      deliveryPerson_demoted_twice() //call this function to fire delivery
       person
```

#### **Surfers**

#### 16. Surfers View Menu / Rating

```
def surfer_view_menu/rating():
    "" displays menu"
    if (chef uploads menu) :
        viewMenu = show_menu.surfers
        if(customers rate food):
        viewRating = show_rating.surfers
```

#### 17. Surfer Apply to Customer

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```
def surfer_login():
    new_customer = create.user_id
    money_deposit = deposit_money.user_id
    manger_check = check.user_id
    update.customer_db
    for i in customer_kickOut:
        if(new_customer == customer_db): // if new customer matches previous
        account
        print("Can not login")
```

Here is a table with the method and their input, output, and main functionalities. Below the table, there are corresponding pseudocodes for each method.

| Method                       | Input/Output and Main Functionalities  |
|------------------------------|--|
| 1. tabooCheck                | Takes in user_id as a parameter and will run on taboo words. It will work on every user's message. It compares words stored in the taboo array, and if a match is found, the taboo word will be converted to *** and a warning is issued. If there are more than three taboo words will cause the message to be blocked. |
| 2. customer_outOf_System     | Accepts user_id as a parameter. When the userID is passed, it will be deleted from the system, and the deposit associated with the userID will be cleared. The manager will handle all this.   |
| 3. manager_recieveComplaints | Accepts user_id as a parameter. With this function, the manager will receive a complaint   |

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|                                 | with the user's name and take further action.  Manager can then dismiss the complaint, or they can give a warning   |
|---------------------------------|---|
| 4. chef_updates_menu            | This method will take the chef's input. The chef will be able to update the menu by adding descriptions of foods. The food_db will be updated so that it can be used later to show customers and surfers.     |
| 5. chef_demote                  | Takes in user_id as a parameter. It has three cases to demote a chef. If it passes one of them it will demote the chef and will decrease the salary. This will be updated in the complaint_db                 |
| 6. chef_demoted_twice           | Takes in user_id as a parameter. If the chef is demoted twice, then user_id will get fired. This would call the chef_demote method and see check if the chef had been demoted previously.                     |
| 7. deliveryPerson_complaint     | This takes in user_id as a parameter. In this method, deliveryPerson can make complaints on customers. VIP customers and registered customers are handled in different manners.                               |
| 8. deliveryPerson_demote        | Takes in user_id as a parameter. It has three cases to demote a deliveryPerson. If it passes one of them it will demote deliveryPerson and will decrease the salary. This will be updated in the complaint_db |
| 9. deliveryPerson_demoted_twice | Takes in the user_id as a parameter. If deliveryPerson is demoted twice, then user_id   |

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|                         | will get fired. This would call the                 |
|-------------------------|---|
|                         | deliveryPerson_demote                               |
|                         | method and see check if the deliveryPerson had      |
|                         | been demoted previously.                            |
| 10. customer_to_VIP     | This takes in user_id as a parameter. This          |
|                         | method's purpose is to update the position of       |
|                         | registered customers to VIP. It takes the           |
|                         | registered customers' names and updates it to       |
|                         | VIP customers.                                      |
| 11. VIP_to_customer     | This takes in user_id as a parameter. This          |
|                         | method's purpose is to demote the position of       |
|                         | VIP customers to registered customers. It takes     |
|                         | the VIP customer's name and demotes it to           |
|                         | registered customers.                               |
|                         |   |
| 12. deregister_customer | This method takes user_id as an argument. If the    |
|                         | manager deregisters a customer, it will take the    |
|                         | user_id, and it will delete it. This will also be   |
|                         | updated in the customer_db.                         |
|                         |   |
| 13. r_customer_promote  | This method takes in the user_id, order_data,       |
|                         | money_spent as a parameter. If a registered         |
|                         | customer meets either of the conditions,            |
|                         | spending five-hundred dollars or having fifty       |
|                         | orders, it will be promoted to VIP. This method     |
|                         | keeps track of how many orders customers make       |
|                         | and how much money they spent. In this              |
|                         | method, the function customer to VIP(user id)       |
|                         | is called. This method is called so that registered |
|                         | 2   |

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|                             | customers can be promoted to VIP.  |
|-----------------------------|--|
| 14. customer_order          | This method takes in user_id as an argument.  When customers make an order, it will check if their account is valid such that they have enough money. Then they will be given three options of how they want their order, either by delivery, pick up, or eat in the restaurant. If they chose to eat in the restaurant, they would need to fix their seat and time. If they decided to pick up the order, they would need to go to the restaurant and pick up from there. However, if they decided on delivery, they would need to enter their address. |
| 15. customer_complaint      | This method takes in user_id as an argument.  The manager is informed. Customers can complain to the chef and delivery man. This method has two conditions. If the complaint was made for the first time on either the chef or delivery man, it will call chef_demote() or deliveryPerson_demote. The second condition is that if the complaint was made for the second time, it will call chef_demoted_twice() or deliveryPerson_demoted_twice()  |
| 16. surfer_view_menu/rating | Displays a GUI of the menu uploaded by the chef with ratings for the surfers.  |
| 17. surfer_login            | This method will take the user's input from the login. This will then compare the user_id with other user_ids in the customer_db to see if this  |

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|                     |  |  |
|                     | user was previously kicked out of the system,      |  |
|                     | and if it was kicked out, it will print a message. |  |
|                     |  |  |

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#### 5. System Screen

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The following are some major GUI screens in our system.

1. The first screen lists the type of users: VIP, registered customer, manager, chef, delivery person, and surfer. The user selects the one they are associated with.

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| VIP                 |  |
|---------------------|--|
| Registered customer |  |
| Manager             |  |
| Chef                |  |
| Delivery person     |  |
| Surfer              |  |

2. The welcome screen displays the following: username, password, register as customer, and log in. The users are allowed to enter their username/password and then click on login. Register for customer option is for surfers/new customers.

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| WELCOME                  |        |
|--------------------------|--------|
| Username:                |        |
| Password:                |        |
|                          |        |
| Register for<br>Customer | log In |

3. This screen is for registered and VIP customers. Based on their history of prior choices, 3 of the listing dishes will appear. For now, we wrote 'insert image' since we have to decide what to do here.

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Sign Out History of prior choices 3 listing dishes insert image insert image insert image

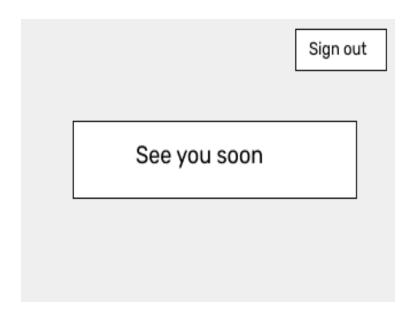
4. The following screen is for customers selecting three of the eating options. They can either select "eat at the restaurant," "pick up food," or "delivery." If the customer selects "eat at the restaurant," they will be taken to the "fix available time/seat" screen. If the customer selects the "pick up food" option, then they are taken to the screen that displays a message saying, "See you soon." If the customer selects the "delivery" option, they are

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taken to the "enter address" screen.



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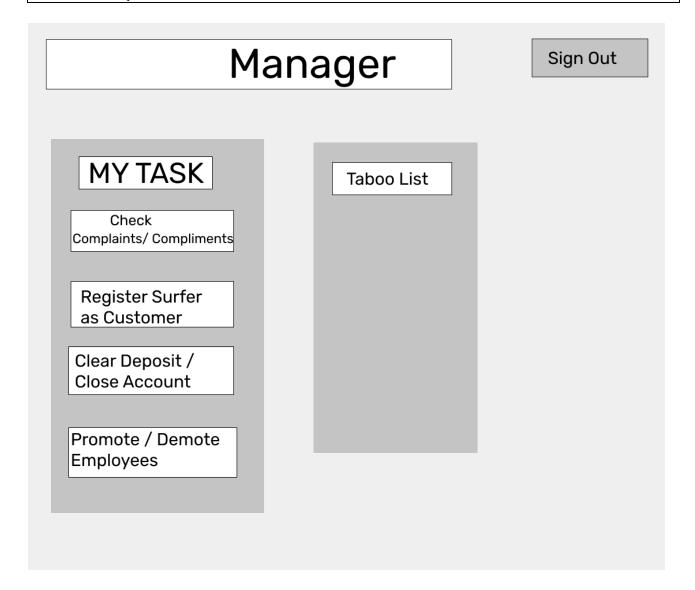
Fix available time/seating:

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This is the screen for the manager. The Manager has responsibilities that are listed under
 My Task. It also has another tab called Taboo List, which the manager keeps.

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6. After surfers / new customers click the Register for Customer option on the welcome screen, it will take them to this image. New customers will be required to fill in the following information to register.

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| To Sign Up for Customer<br>Please Enter Following Information: |          |  |
|--|----------|--|
| Enter Full Name :  |          |  |
| Enter User_ID :  |          |  |
| Enter Password :   |          |  |
| Deposit Money<br>Into Account :                                |          |  |
|  | Sign Up  |  |
|  | Sigil Op |  |

7. Surfers have the option to see the top three most popular dishes and the top three highest-rated dishes. For this GUI, we simply just said insert image, as we are yet to decide what to do for this part.

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Top 3 most popular dishes

- 1. Popular dish image insert
- 2. Popular dish image insert
- **3.** Popular dish image insert

Top 3 highest rated dishes

- 1. Highest rated dish image
- 2. Highest rated dish image
- 3. Highest rated dish image

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#### 6. Group Meetings

Date:

**10/08/2020** -Brief discussion on what each group member can do (15 mins)

-Agreed on using Python programming language for the project (5 mins)

10/8/2020 -Messaged back and forth every day in the group chat about what needs to be

**11/16/2020** done for the project

-These chats included details of specific parts that needed to be done for the project

11/14/2020 -Two-hour video chat on what diagrams need to be fixed/changed

-Worked on the normal and exceptional scenarios (25 mins)

11/15/2020 -Two-hour video chat about the diagrams and pseudo-codes. Also, we viewed

Github, which contains all project-related files in our repository.

-Three hour Google docs meetup on fixing the diagrams

-Group chat texting about the coding (1 hour)

11/16/2020 -Four-hour talk in the group chat/Google docs about finalizing the diagram,

pseudocode, and GUI images

11/17/2020 -Three-hour final review of the second phase report

Our group has been working together and helping each other out for this project.

Everyone has been doing their part for the project.

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# 7. GitHub Repository Link

https://github.com/saifulislamny/RestaurantSystem