HOTEL MANAGEMENT SYSTEM

Group - 5 - Members

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CHAPTER 1 INTRODUCTION

This project mainly focusses on concepts based on OOP to make a Java Application for a group of hotels. The Hotel Management System provides a path for the employees in the Hotel that helps them to ease their access to information and implement assigned functionalities.

The application is meant to be used by the Admin of the restaurant, Assistant Admin, Branch Managers, Chefs, Head Chefs, Waiters as well as the customers of the restaurant. Each of the Employees have a customized view of the Application based upon their designation in the Hotel.

Java Swings have been used in this project to implement the UI phase for the application. The project uses Java Database Connectivity(JDBC) to insert, access, update and delete user defined data from the Hotel Management System database.

CHAPTER 2 ABSTRACT

An entrepreneur starts a group of hotels in important cities of different states. We created an automation software that can manage all his requirements to run the hotels.

Each hotel has its' own id, name, start_date, revenue_planned, expenditure_expected, city, and state. The chefs in each branch of the hotel are identified by a social security number (SSN), and are also described by a name, date of join and a cuisine in which he/she specializes. The chefs may be asked to work in more than one branch if shortage demands. There is a specific menu card for each branch in which a manager is one who takes care of the specific branch requirements. Also, the administrative assistant who serves as an assistant to admin who can manage a small group of hotel. Each food item in the Menu is then assigned to a chef based on his specialization. The performance of each hotel can be analyzed by their profitability and their respective average customer review for Food quality, ambiance, and service.

CHAPTER 3 LIST OF FUNCTIONALITIES

Functional Requirements of the System

- 1. User other than the customers need to login with the system before using the application.
- 2. User can view personal details like SSN, address, salary, etc.
- 3. Admin can update Hotel details whenever required.
- 4. Customers can pay with ease.
- 5. User can update their personal details.
- 6. User can logout of the application.

Use cases

- 1. Login
- 2. Enter or view personal details.
- 3. Branch details
- 4. Update branch
- 5. Chef Admission
- 6. Chef Termination
- 7. View official details
- 8. Update official details
- 9. Salary
- 10. Hotel Menu
- 11. Update Menu
- 12. Update prices
- 13. Last Maintenance
- 14. Service Ratings
- 15. Payment
- 16. Profitability
- 17. Revenue
- 18. Logout

Actors

- 1. Administrator
- 2. Administrative assistant
- 3. Branch Manager
- 4. Head Chef
- 5. Chef
- 6. Waiter
- 7. Customer

CHAPTER 4 USE CASE DESCRIPTION

| Use Case | Login |
|-------------|---|
| Actors | Administrator, Administrative assistant, Branch Manager, Head Chef, |
| | Chef, Waiter |
| Inputs | Username and Password |
| Outputs | The system will state whether inputs are correct or not. |
| Description | Allows user to login to the system using username and password which |
| | later verified to gain access to the system using verify login. Login error |
| | message is displayed if the credentials are incorrect. |

| Use Case | Edit or view personal details |
|-------------|---|
| Actors | Administrative assistant, Branch Manager, Head Chef, Chef, Waiter |
| Inputs | Name, SSN, DOJ, Phone, Address, Title |
| Outputs | The system will display/edit changes in personal details. |
| Description | Allows user to enter/update personal details in the system. |

| Use Case | Branch details |
|-------------|---|
| Actors | Administrator, Administrative assistant, Branch Manager |
| Description | Allows user to view important details about the branch |

| Use Case | Update branch |
|-------------|---|
| Actors | Administrator, Administrative assistant, Branch Manager |
| Inputs | Expected revenue, planned expenditure, |
| Outputs | The system will display the results after updating. |
| Description | Allows user to update any credentials of a particular branch in the system. |

| Use Case | Chef Admission |
|-------------|--|
| Actors | Administrator |
| | |
| Inputs | SSN, Name, address, Phone, Cuisine, Hotel id |
| Outputs | The system will add the details of the chef. |
| Description | Allows user to add details of new chef to a particular branch in the |
| | system. |

| Use Case | Chef Termination |
|-------------|---|
| Actors | Administrator |
| Outputs | The system will remove the details of the chef. |
| Description | Allows user to terminate a chef in a particular branch in the system. |

| Use Case | Salary |
|-------------|--|
| Actors | Administrator, Administrative assistant |
| Description | Allows user to access salary details of employees. |

| Use Case | View official details |
|-------------|---|
| Actors | Administrator, Administrative assistant, Branch Manager, Head Chef, |
| | Chef |
| Description | Allows user to view their salary, ratings, chef branch, and other official details, it acts as a parent function for update official details. Parent function of Update official details. |

| Use Case | Update official details |
|-------------|---|
| Actors | Administrator, Administrative assistant |
| Inputs | Salary, Revenue, Expenditure, Chef branch |
| Outputs | The system will update the details and present the details. |
| Description | Allows users to update salary, chef branch and other official details of employees. |

| Use Case | Hotel Menu |
|-------------|---|
| Actors | Administrator, Administrative assistant, Branch Manager, Head Chef, |
| | Chef, Waiter, Customer |
| Description | Allows user to view food menu of each hotel. |

| Use Case | Update Menu |
|-------------|--|
| Actors | Administrator, Administrative assistant, Branch Manager, Head Chef, |
| | Chef |
| Inputs | Dish, Cuisine |
| Outputs | The system will update the details of the dish and the respective cuisine. |
| Description | Allows user to add/remove a dish from Hotel Menu |

| Use Case | Update Price | |
|-------------|---|--|
| Actors | Administrator, Administrative assistant, Branch Manager | |
| Inputs | Dish Id | |
| Outputs | The system will update the price of the dish. | |
| Description | Allows user to update dish price from Hotel Menu | |

| Use Case | Service Ratings |
|-------------|--|
| Actors | Customer |
| Inputs | User Ratings. |
| Outputs | The system will save the ratings obtained for the service. |
| Description | Allows user to give a review for the service. |

| Use Case | Payment | |
|-------------|---|--|
| Actors | Customer | |
| Inputs | Customer objects. | |
| Outputs | The system will show the output after payment. | |
| Description | Allows user to make online payments and payment is related to | |
| | Revenue. | |

| Use Case | Last Maintenance date |
|-------------|---|
| Actors | Administrator, Administrative assistant, Branch Manager |
| Description | Allows user to view the last maintenance date of the respective hotel |

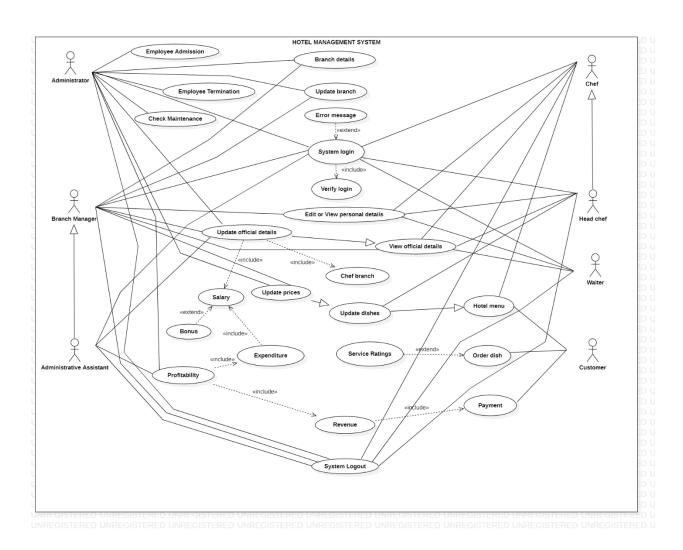
| Use Case | Profitability | |
|-------------|---|--|
| Actors | Administrator, Administrative assistant, Branch Manager | |
| Description | Allows user to determine the total revenue of the branch which includes | |
| | expenditure and salary. | |

| Use Case | Revenue |
|-------------|--|
| Actors | Administrator, Administrative assistant, Branch Manager |
| Description | Allows user to update revenues and expenditure from payment. |

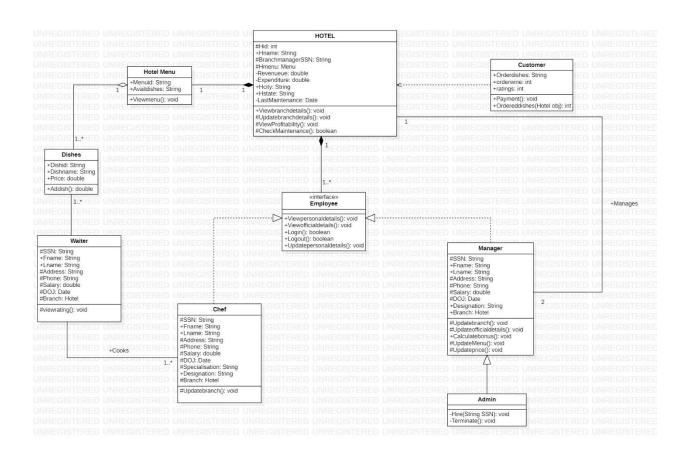
| Use Case | Logout |
|-------------|---|
| Actors | Administrator, Administrative assistant, Branch Manager, Head Chef, |
| | Chef, Waiter |
| Outputs | The user will get logged out of the system. |
| Description | System allows the user to logout. |

CHAPTER 5

USE CASE DIAGRAM



CLASS DIAGRAM



CHAPTER 6

CLASS DESCRIPTION

Hotel Class

- Integer Hid which is the hotel id, declared as protected data member to provide partial data hiding.
- String Hname which is Hotel name, declared as a public data member.
- String BranchmanagerSSN that is SSN of Branch Manager, declared as a protected data member.
- Object of menu class Hmenu ,declared as protected data member.
- double Revenue, declared as private data member.
- double Expenditure, declared as private data member.
- String Heity that is the city where the hotel is in, declared as a public data member.
- String HState that is the state where the hotel is in, declared as a public data member.
- void Viewbranchdetails(), which prints details of the branch details, declared as a public method.
- void, Updatebranchdetails, which enables the user to update branch details, declared as a protected data member.
- Date LastMaintenancedate is the date when last maintenance check was done, declared as a private data member.
- void ViewProfitability, which checks the hotel is running on a profit or not by comparing the revenue to the expenditure of the hotel.

Employee Class

The employee interface is a part of hotel class, that is, the employee class exists only if the hotel class exists and hence the relationship between employee interface and hotel class is a composition. Since one hotel contains several employees, its multiplicity is defined as one to many.

The employee class is defined as an interface class and has some methods defined in it. All the methods in the interface are abstract methods and will be implemented in both Chef and Manager with their own specifications.

It also provides abstraction to various details of Manager and chef.

- void Viewpersonaldetails(), which gives the personal details of the employee. It is declared as a public method.
- void viewofficialdetails(), which gives the official details of the employee. It is declared as public method.
- Bool Login (), enables the user to gain access to the Hotel Management System. Its declared as a public
- Bool Logout (), enables the user to end a session of system. Its declared as a public
- void Updatepersonaldetails(), enables user to update any personal details. It is defined as a public.

Branch Manager Class

The manager class implements the employee interface and hence all the abstract methods defined in the employee interface is implemented here and it has an interface realization also shares a manages relationship with Hotel class that has a multiplicity of 1 to 2, which means that a hotel can have 2 managers which are Assistant Administrator and Branch Manager. The data members defined in it are:

- String SSN, which is the social security number of the Manager. Tt is defined as a protected data member.
- String Fname, is the first name of the manager. It is declared as a public data member.
- String Lname, is the last name of the manager. It is declared as a public data member.
- String Address, is the address of the manager. It is declared as a protected data member.
- String Phone, is the contact number of the employee. It is declared as a protected data member.
- double Salary, is the salary which the manager earns. It is declared as a protected data member.
- Date DOJ, is the date of joining of the manager. It is declared as protected data member.
- String Designation, is the designation of the manager. It is declared as a public data member.
- Object of hotel class, Branch, is the Branch of the manager. It is declared as public data member.
- Date LastMaintenancedate is the date when last maintenance check was done, declared as a private data member.
- In addition to the abstract methods defined in employee interface, this class has certain other methods defined in it
- void Updatebranch(), is a method that enables the manger to update the branch of manager. It is declared as a protected method.

Chef Class

The Chef class implements the employee interface and hence all the abstract methods defined in the employee interface is implemented here and it has an interface realization. It also shares a cook's relationship with Dishes class that has a multiplicity of many to many, which means that a hotel can have several dishes and several chefs.

- String SSN, which is the social security number of the chef. It is defined as a protected data member.
- String Fname, is the first name of the chef. It is declared as a public data member.
- String Lname, is the last name of the chef. It is declared as a public data member.
- String Address, is the address of the chef. It is declared as a protected data member.
- String Phone, is the contact number of the chef. It is declared as a protected data member.
- double Salary, is the salary which the chef earns. It is declared as a protected data member.
- Date DOJ, is the date the chef joined the hotel. It is declared as protected data member.
- Void Updatebranch(), which allows the chef to update the Branch-it is declared as a protected method.

Waiter Class

The Chef class implements the employee interface and hence all the abstract methods defined in the employee interface is implemented here and it has an interface realization. It also shares a cook's relationship with Dishes class that has a multiplicity of many to many, which means that a hotel can have several dishes and several chefs.

- String SSN, which is the social security number of the Waiter. It is defined as a protected data member.
- String Fname, is the first name of the Waiter. It is declared as a public data member.
- String Lname, is the last name of the Waiter. It is declared as a public data member.
- String Address, is the address of the Waiter. It is declared as a protected data member.
- String Phone, is the contact number of the Waiter. It is declared as a protected data member.
- double Salary, is the salary which the Waiter earns. It is declared as a protected data member.
- Date DOJ, is the date the Waiter joined the hotel. It is declared as protected data member.
- Object of hotel class, Branch, is the Branch of the manager. It is declared as public data member.
- Void Updatebranch(), which allows the Waiter to update the Branch-it is declared as a protected method.
- Calculatetip(), is the tip offered to Waiter from Customer It is a protected data member.

Admin Class

The Admin class inherits the data members and member functions of the class manager. It also has some member functions of its own.

- void Terminate(String SSN) member function allows the Admin to Fire Employees which in turn delete them from the database. Its declares as private.
- void Hire () member function allows the Admin to add new employees to the database. Its declares as private.
- String SSN, which is the social security number of the Admin. Tt is defined as a protected data member.
- String Fname, is the first name of the Admin. It is declared as a public data member.
- String Lname, is the last name of the Admin. It is declared as a public data member.
- void Updateprice(), is a method that enables the Admin to update the price of the dishes. It is declared as a protected method.
- Date LastMaintenancedate is the date when last maintenance check was done, declared as a private data member.
- In addition to the abstract methods defined in employee interface, this class has certain other methods defined in it
- void Updatebranch(), is a method that enables the Admin to update the branch of Admin. It is declared as a protected method.

Admin Assistant Class

The Admin Assistant class inherits the data members and member functions of the class manager. It also has some member functions of its own.

- String SSN, which is the social security number of the Admin. Tt is defined as a protected data member.
- String Fname, is the first name of the Admin Assistant. It is declared as a public data member.
- String Lname, is the last name of the Admin Assistant. It is declared as a public data member.
- void Updateprice(), is a method that enables the Admin assistant to update the price of the dishes. It is declared as a protected method.
- Date LastMaintenancedate is the date when last maintenance check was done, declared as a private data member. In addition to the abstract methods defined in employee interface, this class has certain other methods defined in it
- void Updatebranch(), is a method that enables the Admin assistant to update the branch of assistant. It is declared as a protected method.

Customer Class

The customer class is a dependency of the class hotel. This is because this class has a method(Ordereddishes) that uses the object of Hotel class.

- ordereDishes: This is an array of strings which stores the Dishid of the dishes that were ordered by the customer
- ratings: This is a variable used to keep track of the number of stars out of five by the customer.
- void viewandPay(): This function is used to display and then pay the bill after which the revenue is updated in the database.
- int Orderddishes(Hotel obj): This function allows the customer to order their dishes.

Hotel Menu Class

Menu Class is a part of hotel class, that is, the menu class exits only if the hotel class exists and hence the relationship between employee interface and hotel class is a composition. Since one hotel has only 1 menu, the multiplicity is 1 to 1.

- String Menuid, is the id of the menu. It is declared as a public data member.
- String array Availdishes, stores all the dishes in the menu as an string array. It is declared as a public data member.
- void Viewmenu, used to view the menu. Its declared as a public method.

Dishes Class

The dishes class is an aggregated class from the menu. It's an aggregation as dishes is a part of the menu and can exist independently even if it is not in a menu.

- String Dishid, is the id of each of the dish. It is declared as a public data member.
- String Dishname, is the name of the dish in the menu. It is declared as a public data member.
- double Price is the rate of each dish in the menu. It is declared as a public data member.
- void Addish(), which allows the user to add a dish to the menu. It is declared as a protected method.

CHAPTER 7

DATABASE DETAILS

1. HOTEL TABLE

| Column name | Datatype |
|------------------|---------------|
| Hid | Varchar(20) |
| Hname | Varchar(20) |
| Sdate | Date |
| Revenue | Numeric(50,2) |
| Expenditure | Numeric(50,2) |
| City | Varchar(20) |
| State | Varchar(20) |
| Last Maintenance | Date |

2. EMPLOYEE TABLE

| Column name | Datatype |
|-------------|---------------|
| SSN | Varchar(4) |
| Fname | Varchar(20) |
| Lname | Varchar(20) |
| DOJ | Date |
| Salary | Numeric(25,2) |
| Designation | Varchar(20) |
| Phone | Varchar(10) |
| Address | Varchar(50) |

3. CHEF TABLE

| Column name | Datatype |
|-------------|-------------|
| SSN | Varchar(4) |
| Speciality | Varchar(20) |

4. HOTELEMP TABLE

| Column | Datatype |
|--------|------------|
| SSN | Varchar(4) |
| HID | Varchar(4) |

5. MENU TABLE

| Column name | Datatype |
|-------------|-------------|
| Mid | Varchar(20) |
| Hid | Varchar(20) |
| qty | integer |

6. DISH TABLE

| Column name | Datatype |
|-------------|--------------|
| DID | Varchar(20) |
| Dname | Varchar(50) |
| Price | Numeric(9,2) |

7. PART OF TABLE

| Column name | Datatype |
|-------------|-------------|
| Mid | Varchar(20) |
| DID | Varchar(20) |

8. COOKS TABLE

| Column name | Datatype |
|-------------|-------------|
| DID | Varchar(20) |
| SSN | Varchar(20) |

CHAPTER 8

UI DESIGN

1. HOME PAGE



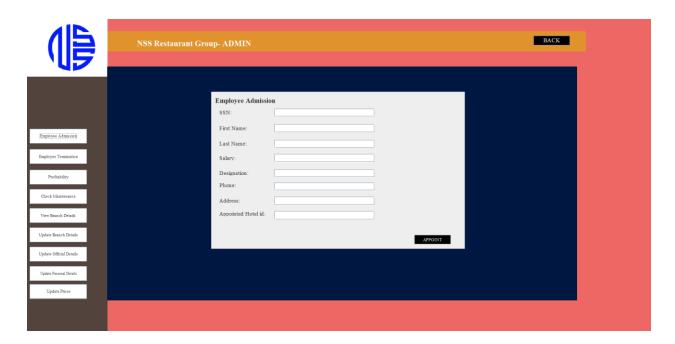
2. USER LOGIN PAGE



3. ADMIN LOGIN PAGE

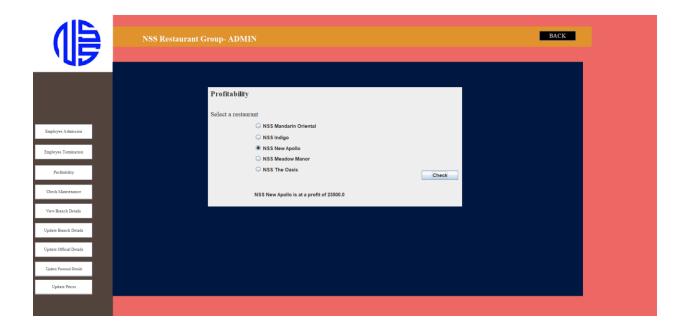


4. ADMIN VIEW

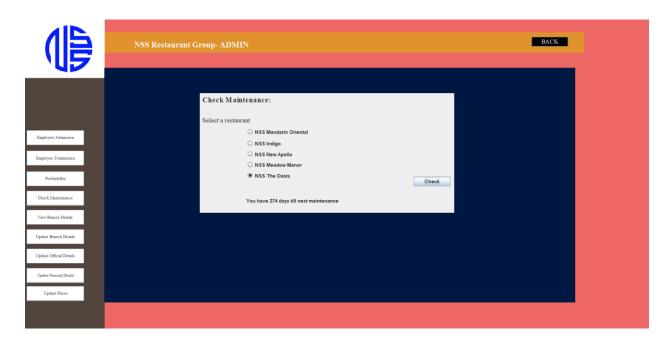


ADMIN FUNCTIONALITIES:

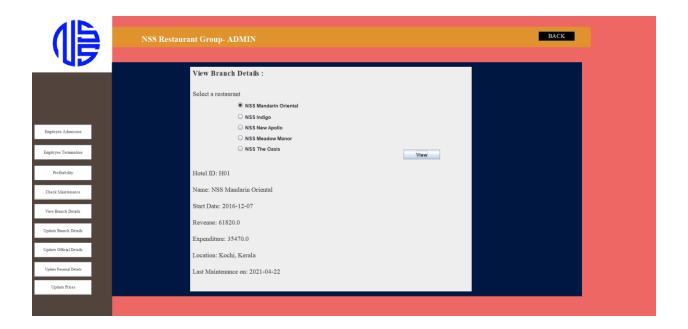
4.1 PROFITABILITY



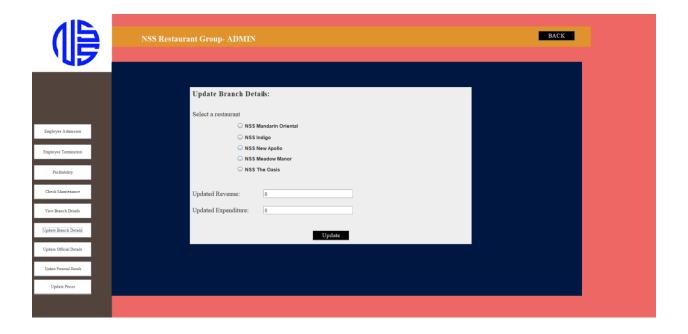
4.2 LAST MAINTENANCE



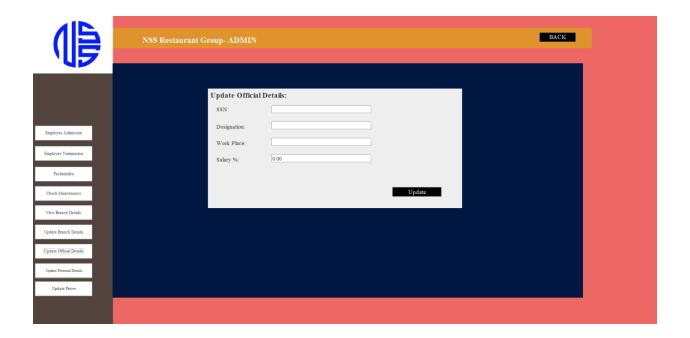
4.3 BRANCH DETAILS



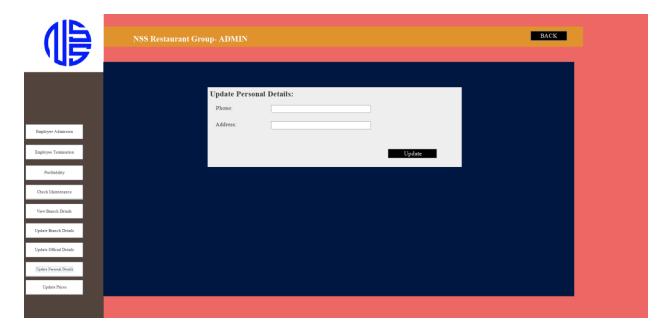
4.4 UPDATE BRANCH DETAILS



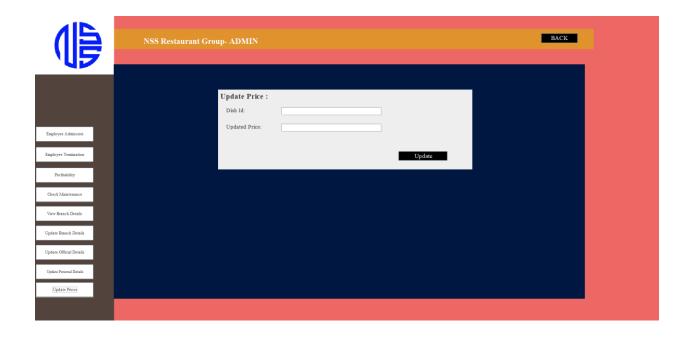
4.5 UPDATE OFFICIAL DETAILS



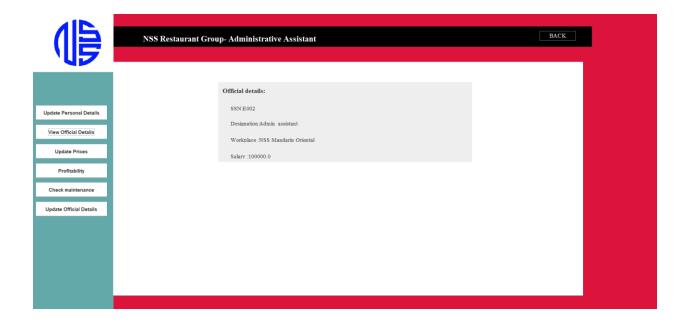
4.6 UPDATE PERSONAL DETAILS



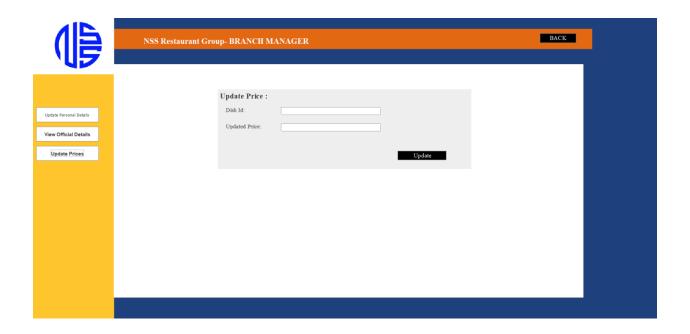
4.7 UPDATE PRICE



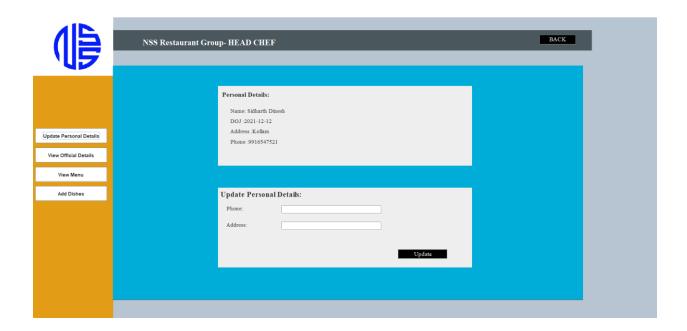
5. ADMINISTRATIVE ASSISTANT VIEW



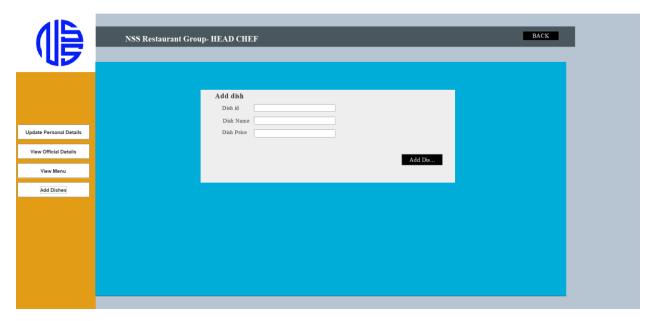
7. BRANCH MANAGER VIEW



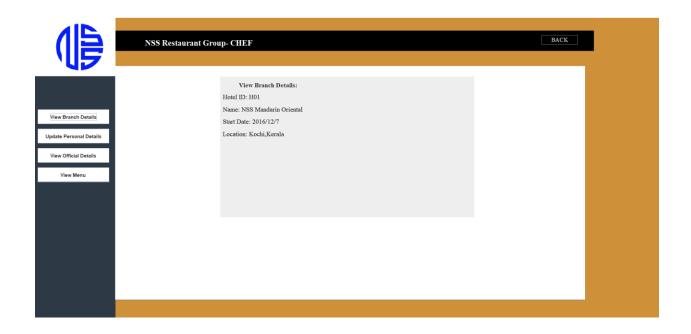
8. HEAD CHEF VIEW



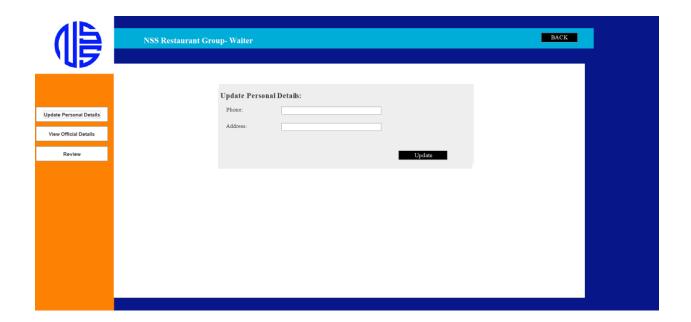
8.1 ADD DISHES



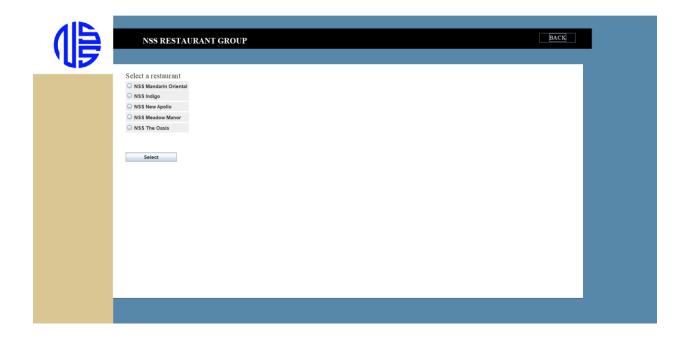
9. CHEF VIEW



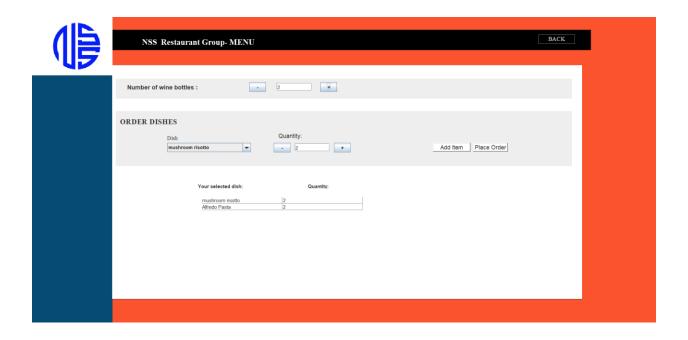
10. WAITER VIEW



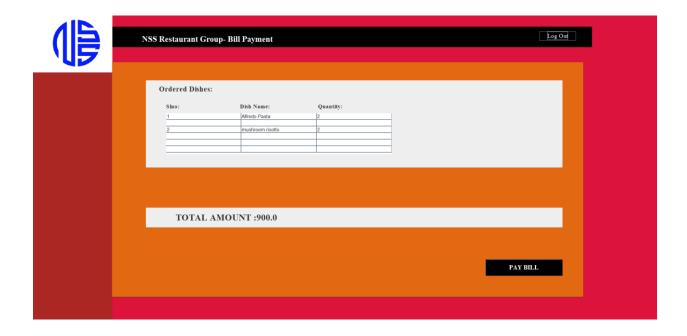
11. CUSTOMER VIEW



12. MENU



13. PAYMENT



CHAPTER 9 TOOLS USED

FRONT-END: GUI – Java Swing components, Java, JDBC

BACK-END: PostgreSQL

CHAPTER 10 CONCLUSION & FUTURE WORK

This project is an excellent example of how we can use our technology to manage our daily needs to a large group of restaurants with ease and transparent. Hotel management system mainly facilitates the needs of each user to experience a easy and friendly approach within their tip of hands. In which Admin can manage the needs of each hotel instantly using this system rather than to visit each one. The customers with ease can order their respective dishes and pay for it without any delay, Employers can view their respective details and accredited menu transparently which is an important feature of the system. Currently the system works for limited number of users to work. In near future it will be extended for many users parallelly so that all users can experience an efficient application.

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CHAPTER 12 APPENDIX

| Source Code: |
|---|
| https://github.com/sivasankarLM10/Hotel-Management-System |
| |
| ****************************** |