
Group 08

**Tasty Tongue
Software Architecture Document**

Version 1.4

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Revision History

Date	Version	Description	Author
23/11/2023	1.0	Logical view, Component related to Staff	Nguyen Phung Tai
24/11/2023	1.1	Introduction, Architecture goal & constraints	Nguyen Le Anh Chi
1/12/2023	1.2	Component related to Admin	Le Ngo Song Cat
2/12/2023	1.3	Component related to Customer	Bui Ngoc Kieu Nhi
2/12/2023	1.4	Component Data, Final check	Nguyen Le Anh Chi
10/12/2023	1.5	Implementation View	Le Ngo Song Cat
15/12/2023	1.6	Deployment	Nguyen Phung Tai

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Software Architecture Document

1. Introduction

1.1 Purpose

- This document provides a thorough description of the system's architecture, utilizing various architectural perspectives to illustrate different aspects of our platform. We aim to show you how the website works and our intention behind the design so that it would be easier for the users to use the system conveniently.

1.2 Scope

- The scope of this document is to depict the architecture of Tasty Tongue - a restaurant management website application created by our team.

1.3 Definitions, Acronyms, and Abbreviations

1.3.1 Term list

- Stakeholder: any person involved or affected, directly or indirectly, by this product.
- Component: A modular and self-contained unit within a software system that performs a specific function or set of related functions.

1.3.2 Acronym list:

- SAD: Software Architecture Document.
- API: Application Programming Interface, a protocol used as an interface to allow communication between different components
- HTTP: Hypertext Transfer Protocol.
- UI: User-Interface, which is the series of screens, pages, and visual elements—like buttons and icons—that enable a person to interact with a product or service.

1.4 References.

- [1] Full course *CSC13002 Faculty of Information Technology at HCMUS*
- [2] [Project Guideline](#)
- [3] <https://www.uml-diagrams.org/package-diagrams-overview.html>
- [4] <https://online.visual-paradigm.com/diagrams/templates/package-diagram/>
- [5] upcommons.upc.edu/bitstream/handle/2099.1/18373/90629.pdf
- [6] [eDelivery](#)

1.5 Overview

- The introduction of the Software Architecture Document provides an overview of the entire Software Architecture Document. It includes the purpose, scope, definitions, acronyms, abbreviations, references, and overview of this document.
- In order to fully document all the aspects of the architecture, the SAD contains the following subsections:

Section 2: Describes the architectural constraints of the system.

Section 3: Describes the Use-Case Model.

Section 4: Describes the Package Diagram.

Section 5: Describes how the system will be deployed.

Section 6: Describes the Implementation view of the system.

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2. Architectural Goals and Constraints

There are some important requirements and constraints that have a significant bearing on Tasty Tongue system:

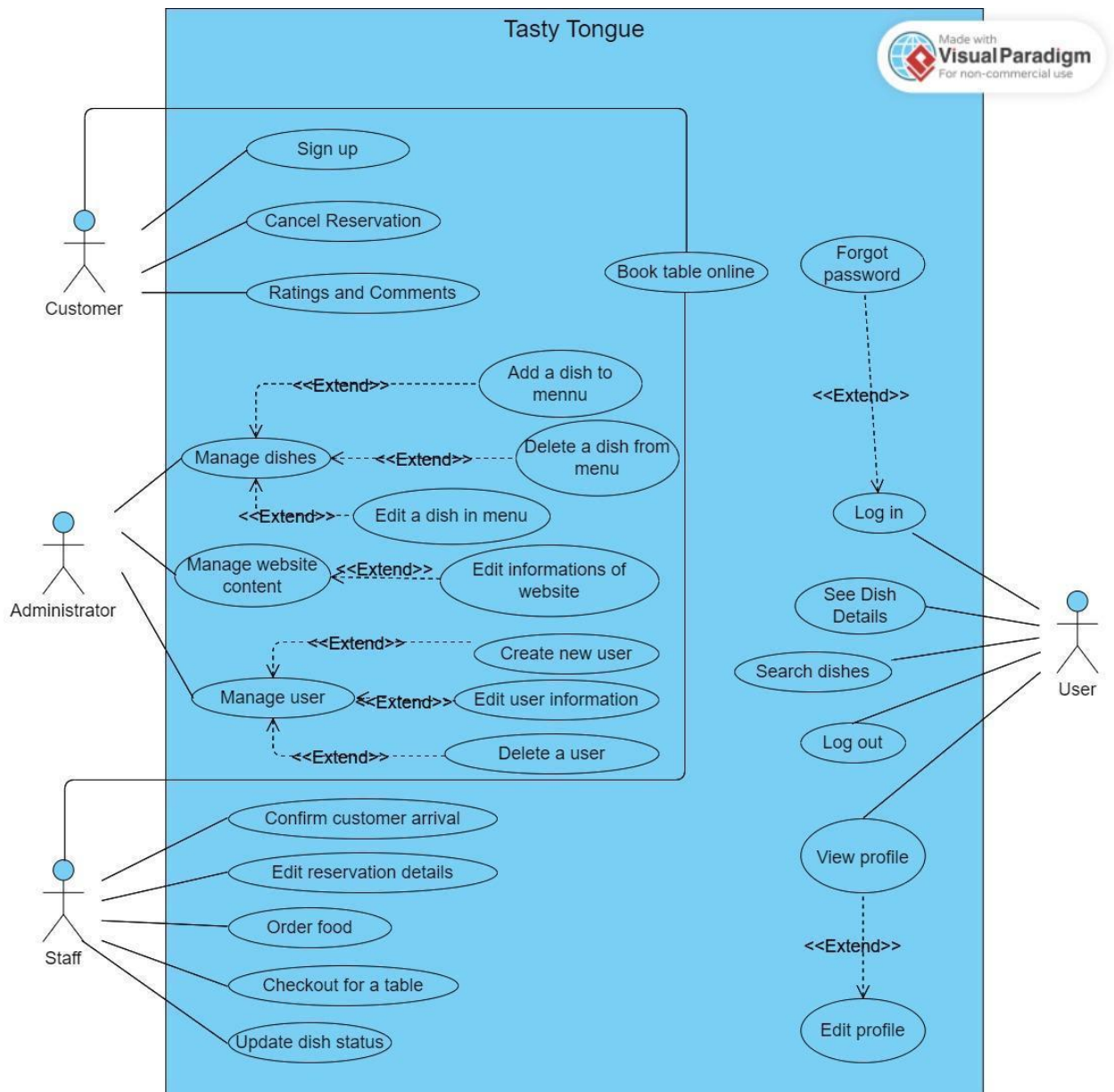
- The website can support up to 100 concurrent users.
- The website needs to have at least 99% uptime, allowing for scheduled maintenance windows.
- The website should be mobile responsive for ease of use on different devices.
- The website should be able to handle increased traffic during peak hours.
- The website should be user friendly.

This section defines the quality ranges for performance, fault tolerance, security and similar characteristics for the system:

- Performance: Website pages should load in under 2 seconds, searching on the website should show results in less than 1 minute.
- Security: Passwords should be hashed and salted before storing in the database, the authentication and verification process should only consume less than 5 minutes.
- Scalability: The website should be able to handle increased traffic during peak hours, scaling out architecture should allow adding more servers easily.
- Maintainability: Code should follow consistent style guidelines, database and dependencies should be easy to upgrade, logging and monitoring should be implemented.

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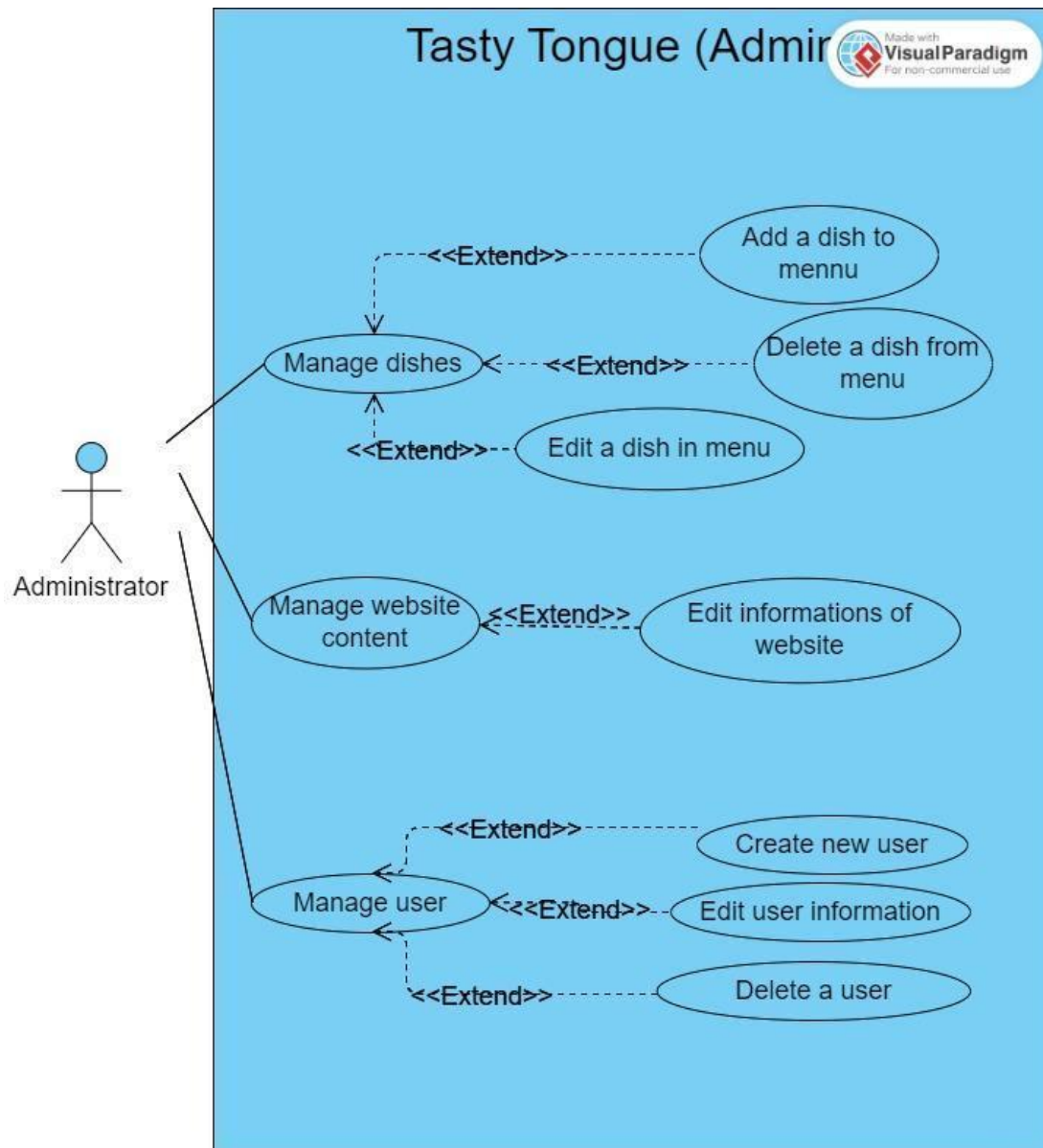
3. Use-Case Model



P3.1 - Use-Case Diagram

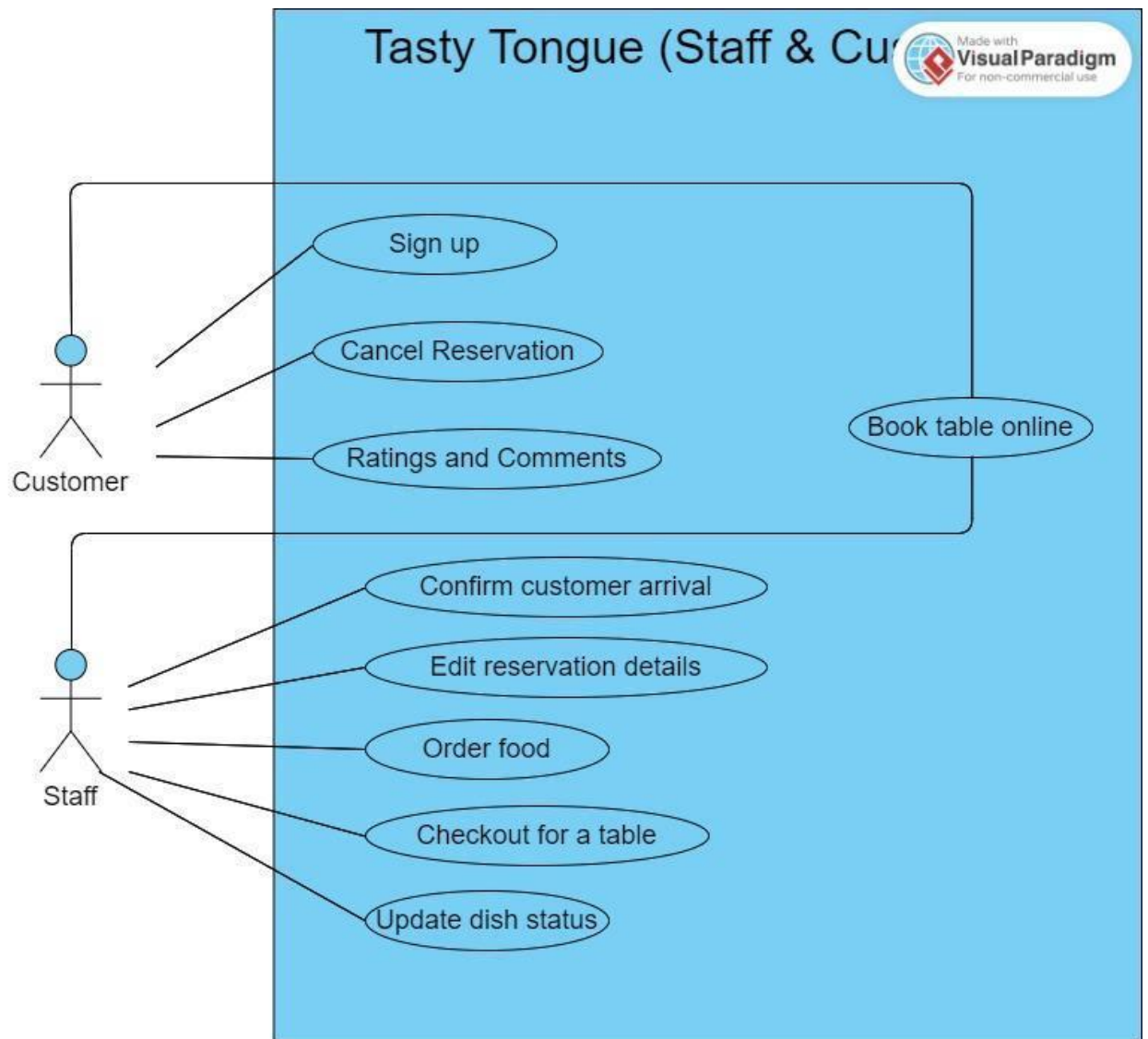
In case the above picture is too difficult to observe, we have separated the diagram into 3 smaller diagrams for better vision.

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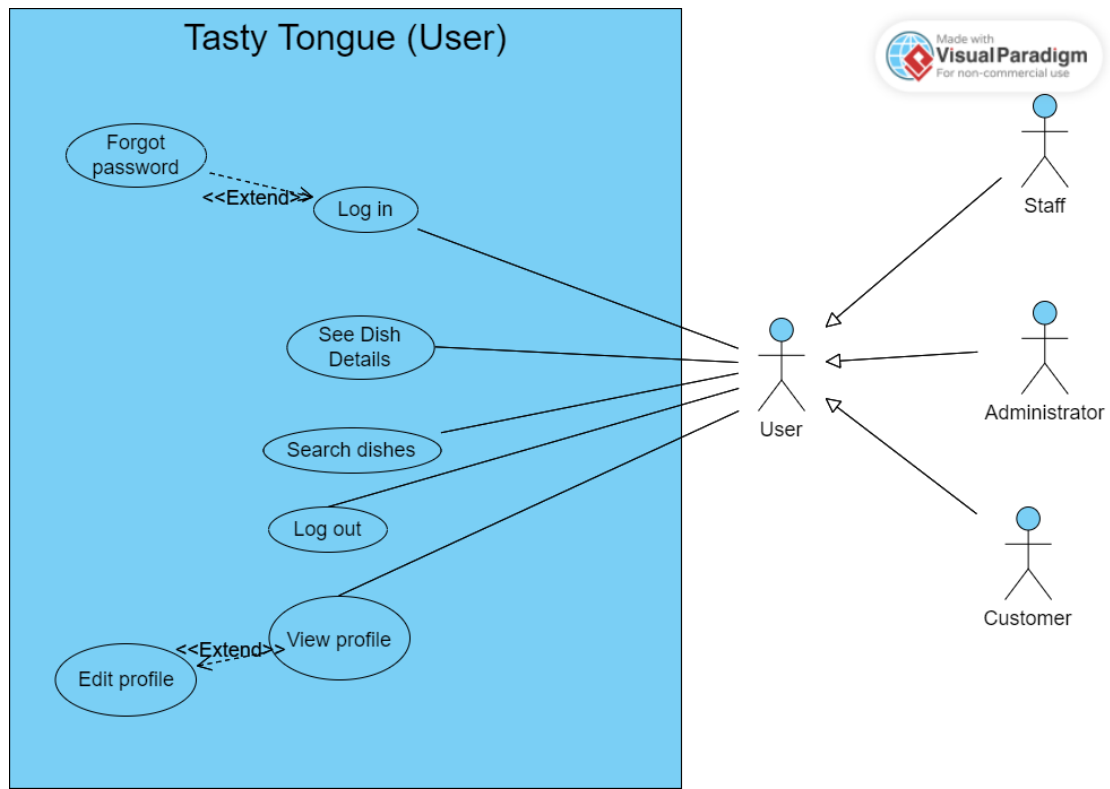
P3.2 - Use-Case Diagram (Admin)

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P3.3 - Use-Case Diagram (Staff & Customer)

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P3.4 - Use-Case Diagram (User)

4. Logical View

This system adopts a Layered Architecture Pattern with three main layers: User Interface (UI), Application Logic, and Database.

a) User Interface:

Functionality:

- Provides a graphical interface for users to interact with the system.
- Receives and processes actions performed by users.

Communication:

- HTTP/HTTPS: Sends requests from users to the Application Logic layer for processing.

b) Application Logic:

Functionality:

- Contains all logic related to business processes.
- Handles requests from the User Interface and interacts with the database.

Communication:

- Uses PHP to implement methods for processing requests from the User Interface.
- Connects to the database through services to perform CRUD operations.

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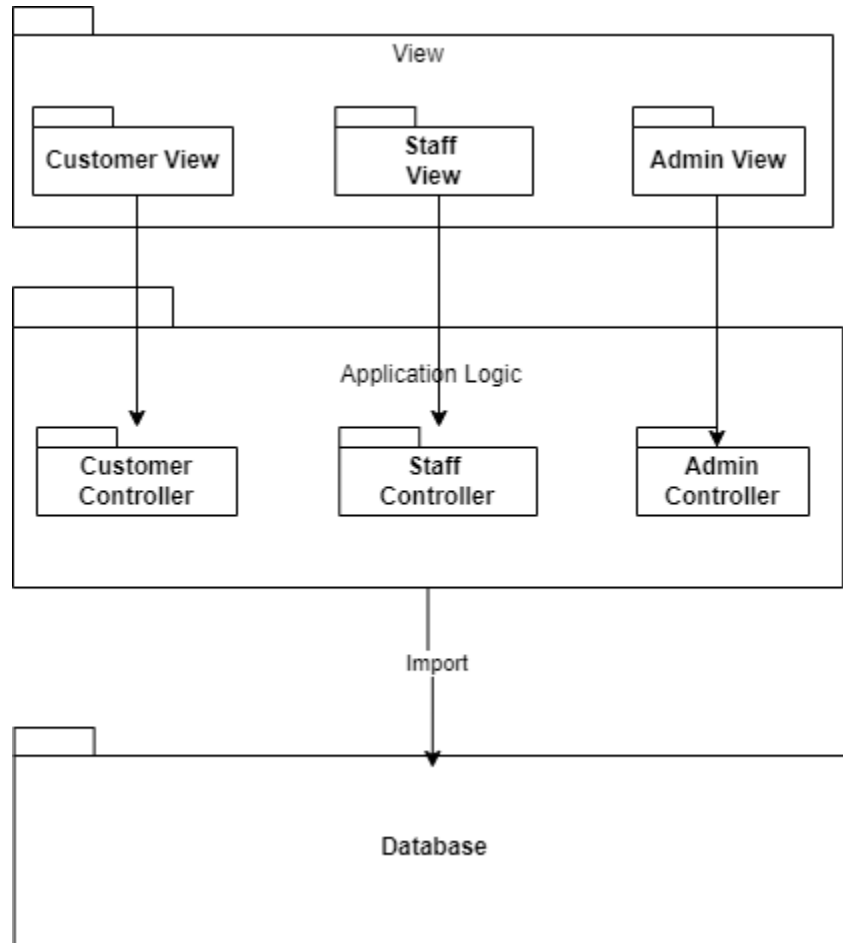
c) Database:

Functionality:

- Serves as the storage location for system data, such as menus, orders, and user information.
- Receives requests from the Application Logic layer to perform CRUD operations.

Communication:

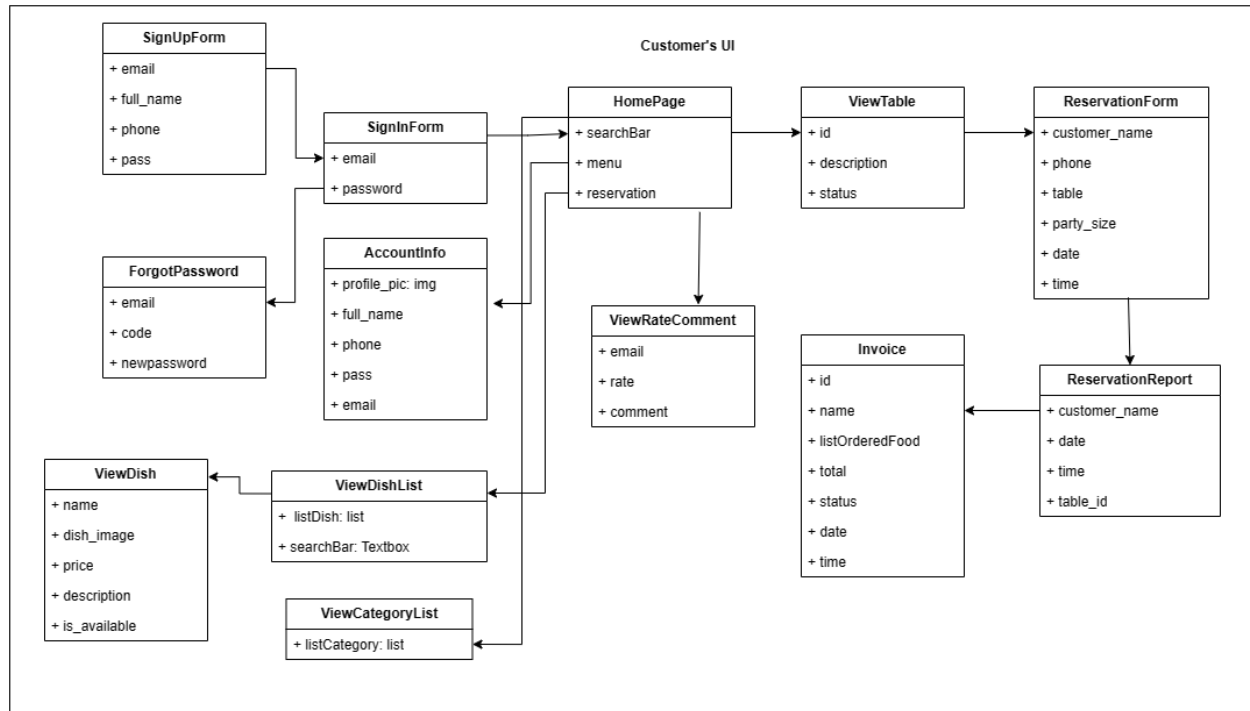
- Uses SQL query language to interact with the database.
- Called by the Application Logic layer to receive and send data.



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4.1 Component Presentation

4.1.1 Customer's UI



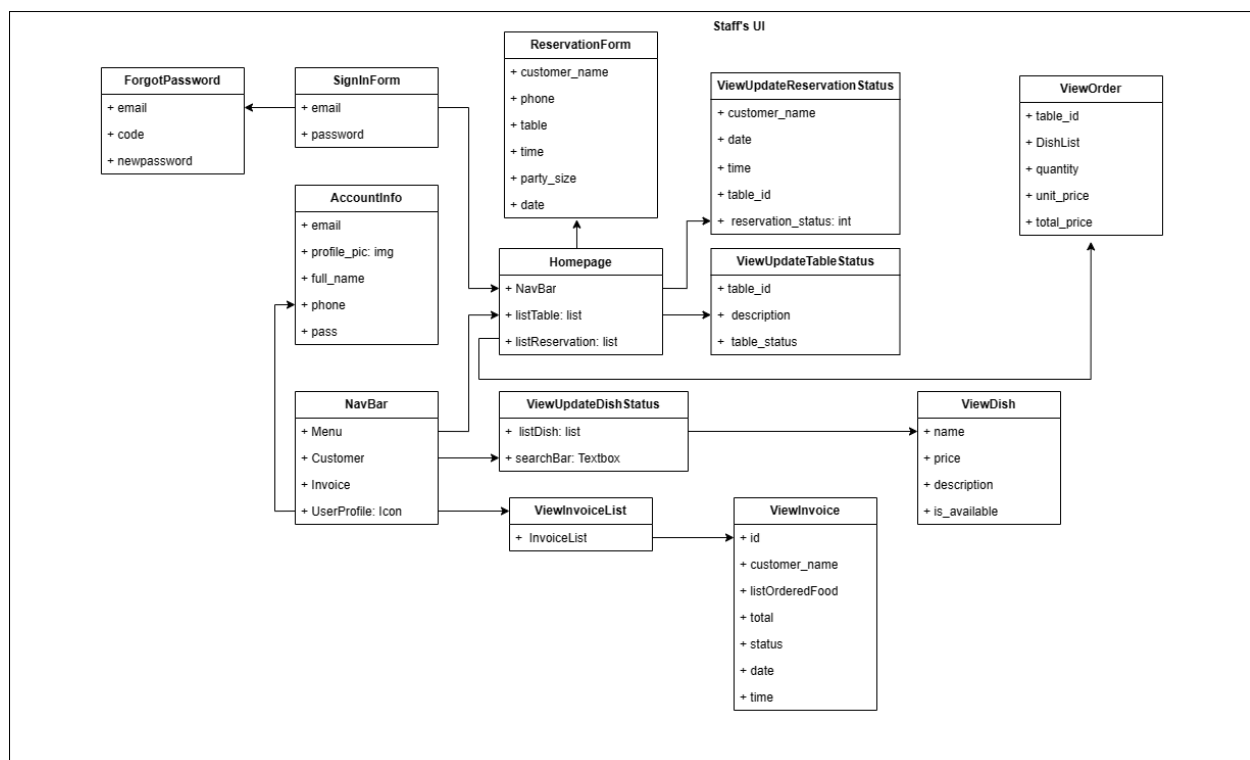
- **SignUpForm:** This component has a form with various text boxes for customers to enter the essential information to create an account.
- **SignInForm:** This component has a form with various text boxes and a “Log-in” button for users to enter their account information (username and password).
- **ForgotPassword:** This component has a form with various text boxes for customers to enter the essential information to reset their password.
- **HomePage:** This component represents the main page of the website. It serves as the initial landing page for visitors and provides an overview of the restaurant’s offering, promotions, and other relevant information. The homepage often includes navigation menus and selections highlighting featured dishes or events.
- **AccountInfo:** This component is responsible for displaying and managing the account information of a logged-in user. It allows users to view and update their personal details, such as name, contact information, and preferences.
- **ViewTable:** This component is used to display the available tables in the restaurant. It includes information such as table numbers, seating capacity, and availability. This component is used by customers to select a table when making a reservation or by staff to manage table assignment.
- **ReservationForm:** This component provides a form where customers can enter details for making a reservation at the restaurant. It typically includes fields such as customer’s name, telephone, table number, party size, date, time and any special requests or preferences.
- **ReservationReport:** This component generates a report or summary of existing reservations. It includes information such as reservation dates, times, party sizes and customer details. It is useful for staff or management to track and manage reservations efficiently.
- **Invoice:** This component generates an invoice or bill for a customer’s order. It is commonly used during the checkout process or when generating receipts for customers.
- **ViewRateComment:** This component allows users to view and interact with the ratings and comments

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provided by other customers. It provides a platform to display feedback on dishes, services, or the overall dining experience. Users can read and potentially leave their own ratings and comments.

- **ViewDish:** This component displays detailed information about a specific dish on the restaurant's menu. It includes elements such as the dish's name, description and price. It allows users to explore individual dishes and make informed choices.
- **ViewDishList:** This component presents a list or grid of multiple dishes available on the restaurant's menu. It allows users to browse through various menu items, typically organized by categories or sections. Each dish item may include a thumbnail image, name, price, and basic details to entice users to explore further.
- **ViewCategoryList:** This component displays a list of different categories or types of dishes offered on the restaurant's menu. It allows users to browse and select a specific category to view related dishes. This component helps users navigate the menu more efficiently or preferences.

4.1.2 Staff's UI



- **SignInForm:** This component has a form with various text boxes and a “Log-in” button for users to enter their account information (username and password).
- **ForgotPassword:** This component has a form with various text boxes for customers to enter the essential information to reset their password.
- **HomePage:** This component represents the main page for employees upon login. It provides an overview of the current status of the restaurant, such as the status of tables, the reservation list and includes navigation links to menu pages, customer information, invoices, and user profiles.
- **AccountInfo:** This component is responsible for displaying and managing the account information of a logged-in user. It allows users to view and update their personal details, such as name, contact information, and preferences.
- **ReservationForm:** This component provides a form where staff can enter details for making a reservation at the restaurant. It includes fields such as customer's name, telephone, table number, party size, date, time and any special requests or preferences.
- **ViewUpdateReservationStatus:** This component allows staff to view and update the status of existing

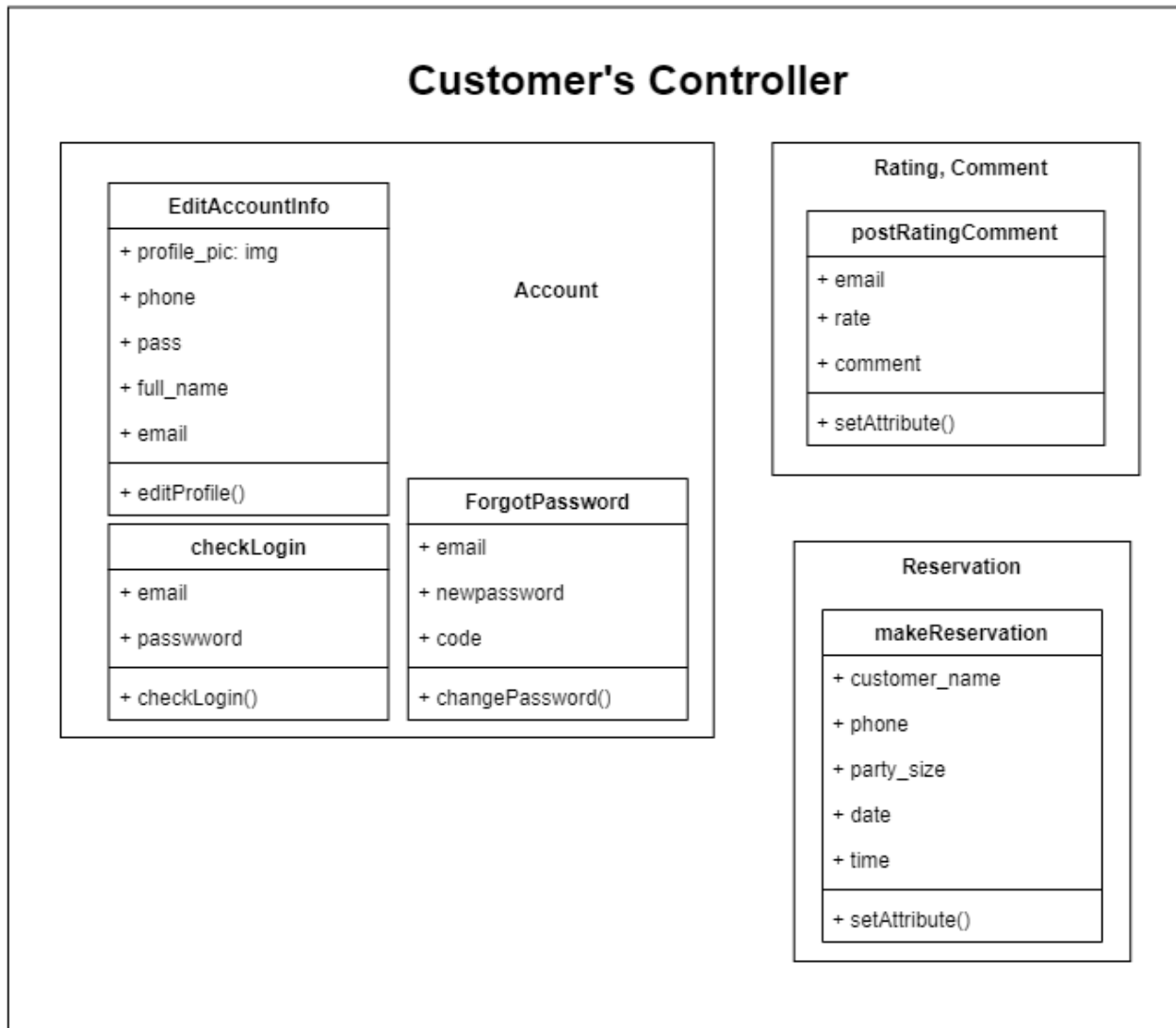
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- **SignInForm:** This component has a form with various text boxes and a “Log-in” button for users to enter their account information (username and password).
- **ForgotPassword:** This component has a form with various text boxes for customers to enter the essential information to reset their password.
- **HomePage:** This component represents the dashboard for administrators of the website. It serves as the initial landing page for visitors and provides an overview of the restaurant’s human resources, dish resources, and the total revenue of the restaurant on that day. The homepage includes the navigation bar that leads to pages of menu, customers, staff, invoices, and categories. Additionally, there is a profile icon allowing the administrators to view their detailed information.
- **AccountInfo:** This component is responsible for displaying and managing the account information of an administrator. It allows them to view and update their personal details, such as name, contact information, and preferences.
- **Navbar:** The navigation bar that leads to pages of menu, customers, staff, invoices, and categories. Additionally, there is a profile icon allowing the administrators to view their detailed information.
- **ViewDishList:** This component is used to display the available dishes in the restaurant. It includes a table of dish information such as dish name, small dish image, dish price, and its short description.
- **ViewUpdateDish:** This component displays detailed information about a specific dish on the restaurant’s menu. It includes elements such as the dish’s name, description and price and allows administrators to make changes to dish information.
- **ViewCustomerList:** This component is used to display the customer’s accounts of the restaurant. It includes a table of customers providing information such as customer’s id, customer’s name, and action buttons for updating or deleting a customer’s account.
- **ViewUpdateCustomer:** This component displays detailed information about a specific customer and allows administrators to make changes to customer’s information.
- **ViewStaffList:** This component is used to display the staff’s accounts of the restaurant. It includes a table of staff providing information such as staff’s id, staff’s name, and action buttons for updating or adding new staff.
- **ViewUpdateStaff:** This component displays detailed information about a specific staff and allows administrators to make changes to staff’s information.
- **ViewAddStaff:** This component displays a page that allows administrators to add a new staff’s account by providing information such as staff’s name, email, and password.
- **ViewCategoryList:** This component is used to display the available categories in the restaurant. It includes a table of categories information such as category name, and its short description.
- **ViewAddCategory:** This component displays detailed information about a specific category in the restaurant and allows administrators to make changes.
- **ViewInvoiceList:** This component presents a list of previous invoices of the restaurant. It includes a table of invoices providing invoice information such as invoice’s id, customer’s name, total amount, date, time and action buttons to pay, print or cancel invoice.
- **ViewPrintInvoice:** This component displays detailed information about a specific invoice including information such as invoice’s id, customer’s name, list of ordered dishes, total amount and allows the administrator to print invoice in PDF.

4.2 Component: Controller

4.2.1 Customer Controller

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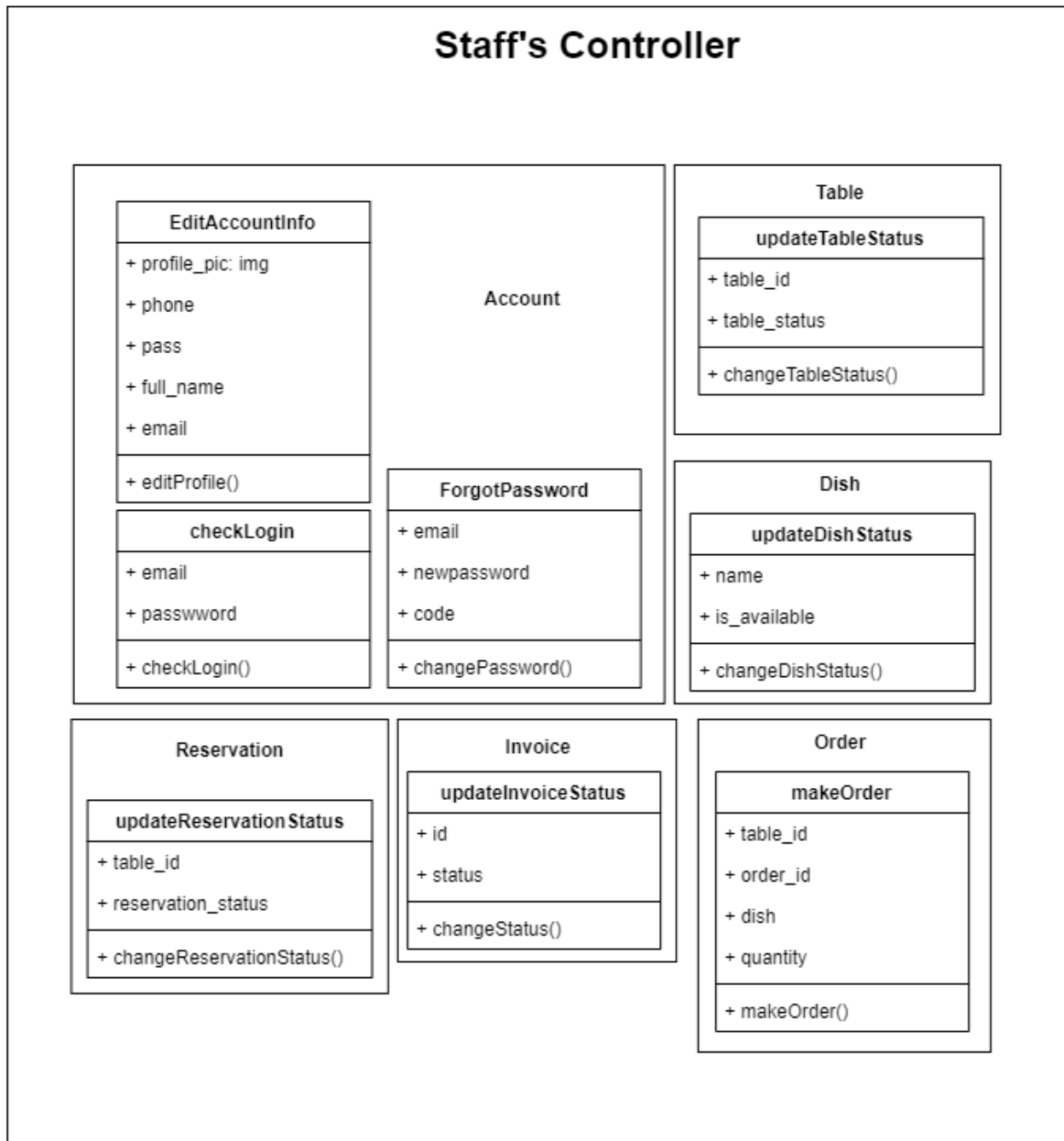
- **EditAccountInfo:** This component is responsible for allowing users to modify their account information. It typically provides a form or interface where users can update details such as their name, contact information, preferences, or profile picture. This component is used to manage and save changes to the user's account.
- **checkLogin:** This component is responsible for verifying the user's login credentials. It typically handles the authentication process by checking the entered username and password against the stored user data. This component is often used in conjunction with the **SignInForm** component to authenticate users and grant access to restricted areas or features of the website.
- **ForgotPassword:** This component assists users in resetting or recovering their forgotten passwords. It typically presents a form or interface where users can input their email address or username associated with their account. After submitting the required information, the component initiates the password reset process, which may involve sending a password reset link to the user's email or providing security questions to verify their identity before setting a new password.
- **postRatingComment:** This component enables users to submit their ratings and comments for a specific dish, service, or overall experience. It provides a form or interface where users can enter their feedback and submit it to be stored and displayed on the website. This component allows users to share their opinions.

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and contribute to the restaurant's reputation.

- **makeReservation:** This component handles the process of creating a reservation for the customer. It typically interacts with the ReservationForm component to collect the necessary information such as date, time, party size, and special requests. This component communicates with the backend system to save the reservation details and provide confirmation to the customer.

4.2.2 Staff Controller



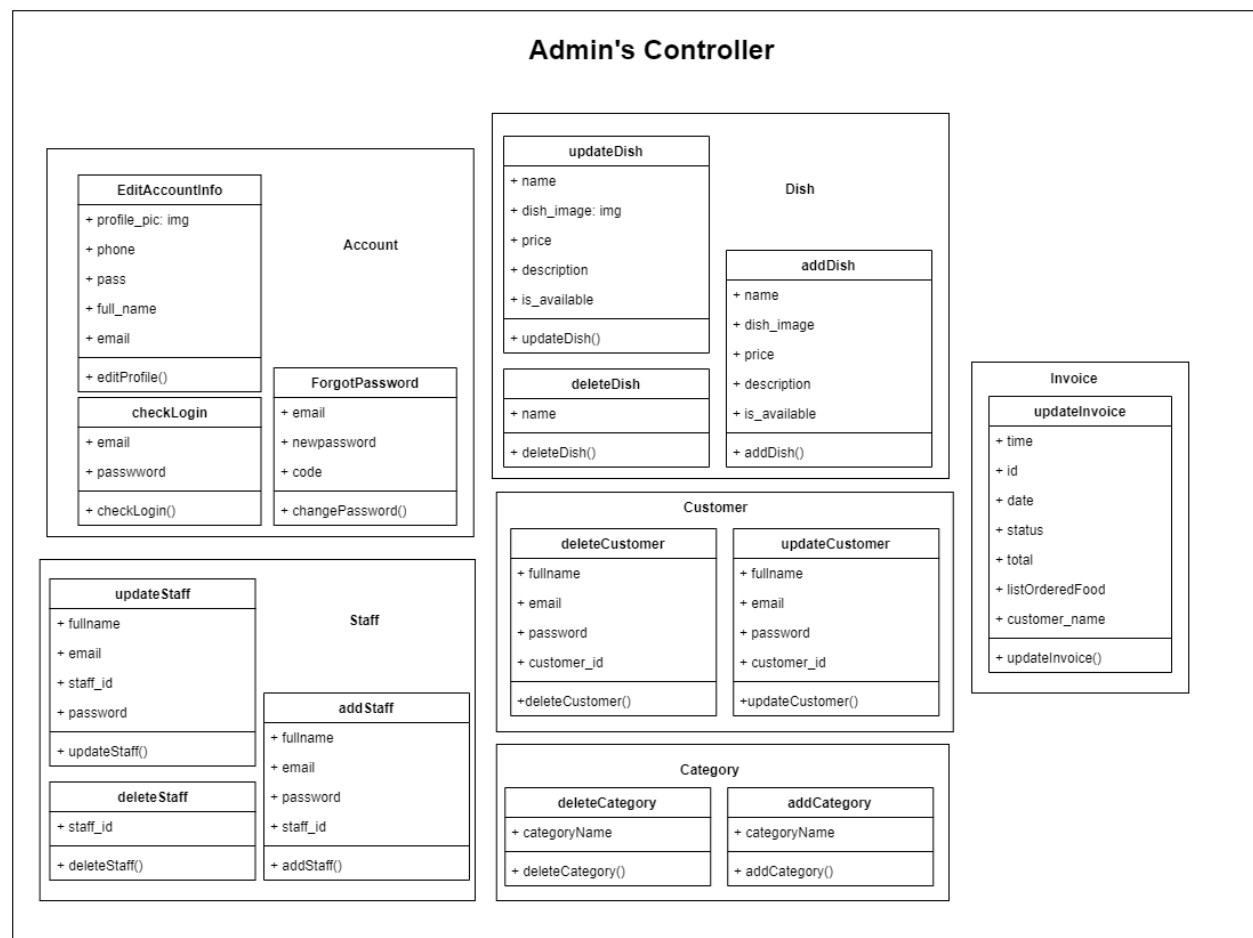
- **EditAccountInfo:** This component is responsible for allowing staff to modify their account information. It

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provides a form or interface where staff can update details such as their name, contact information, image, or profile picture.

- **checkLogin:** This component is responsible for authenticating staff members during the login process, this controller verifies the accuracy of staff credentials (username and password). It ensures secure access to the staff interface, allowing only authorized personnel to log in.
- **forgotPassword:** This component gets the email address from the staff then sends them a verification mail. After the staff confirms the verification email, they are permitted to change the password of their accounts.
- **updateDishStatus:** This component handles requests related to updating the status of individual dishes within the restaurant's menu. This controller allows staff to update the status of the dish.
- **updateInvoiceStatus:** This component allows staff to update the status of customer invoices. This controller allows marking invoices as paid or unpaid, facilitating efficient billing processes and financial management.
- **updateTableStatus:** This component manages requests to update the status of tables in the restaurant. This controller enables staff to update the table's status.
- **updateReservationStatus:** This component handles requests related to updating the status of reservations. This controller allows staff to confirm, cancel, or modify reservation statuses, ensuring coordination and effective management of the restaurant's reservation system.
- **makeOrder:** This component allows staff members to create and process customer orders. This controller manages the order creation process, including tables, dishes, and quantities.

4.2.3 Admin Controller



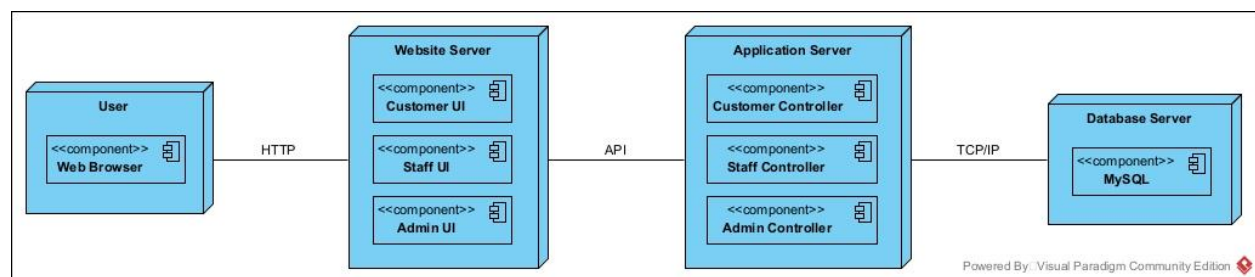
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- **EditAccountInfo:** This component includes personal information of administrators and allows them to make changes in details.
- **checkLogin:** This component provides authentication and authorization services for the admin..
- **ForgotPassword:** This component gets the email address from the admin then sends them a verification mail. After the admin confirms the verification email, they are permitted to change the password of their accounts.
- **updateDish:** This component handles the process of updating a specific dish. It receives a name, description, price and dish's image.
- **addDish:** This component handles the process of adding a new dish to the database. It receives the dish's name, description, price and its image. The controller does not allow the user to leave any field blank.
- **deleteDish:** This component handles the function to delete a specific dish from the menu. It receives the dish's id and name, then deletes the corresponding dish from the database.
- **addCategory:** This component handles the process of adding a new category to the database. It receives the category's name. The controller does not allow the user to leave a field blank.
- **deleteCategory:** This component handles the function to delete a specific category. It receives the category's id and name, then deletes the corresponding category from the database.
- **updateInvoice:** This component handles the process of updating status of a specific invoice. It receives the invoice's id, its new status and changes corresponding invoice in the database.
- **updateCustomer:** This component handles the process of updating a specific customer. It receives a new customer's name, password, and email. Then, it changes the corresponding customer in the database.
- **deleteCustomer:** This component handles the function to delete a specific customer. It receives the customer's id and name, then deletes the corresponding customer from the database.
- **addStaff:** This component handles the process of adding a new staff to the database. It receives the staff's name, id, password, and email. The controller does not allow the user to leave any field blank.
- **updateStaff:** This component handles the process of updating a specific customer. It receives a new staff's name, password, and email and changes corresponding staff in the database.
- **deleteStaff:** This component handles the function to delete a specific customer. It receives the staff's id and name, then deletes the corresponding staff from the database.

4.3 Component Data

- All the information related to users' accounts website's contents is stored in this Data folder and a special file to connect to the database by using MySQL. This component is also mainly served for authentication, authorization and content management.
- By utilizing this folder, we've crafted a web application with a seamless user experience, efficient data management, and convenient image storage.

5. Deployment



- Node "User":
 - o Component: Web Browser
 - o Description: This node represents users accessing the system through a web browser.
- Node "Web Server":
 - o Components: Customer UI, Staff UI, Admin UI
 - o Description: The Web Server hosts the user interfaces, including interfaces for customers, staff,

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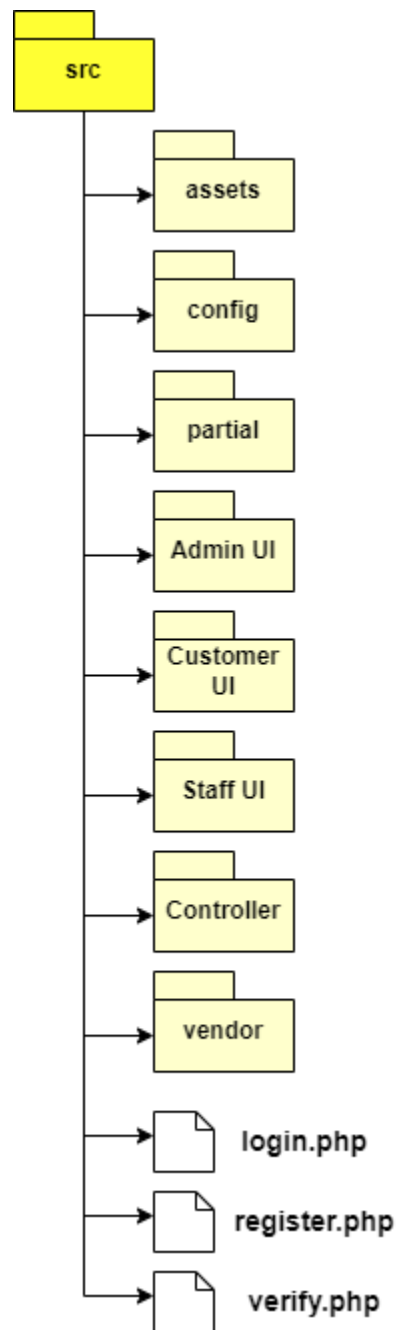
and administrators. It handles incoming HTTP requests from user browsers, processes these requests, and communicates with the Application Server to retrieve or update data.

- Connections: User (Web Browser) connects to the Web Server using the HTTP protocol.
- Node "Application Server":
 - Components: Customer Controller, Staff Controller, Admin Controller
 - Description: The Application Server contains the business logic of the restaurant system. It processes requests received from the Web Server, interacts with the appropriate controllers, and manages the flow of data between the user interfaces and the database.
 - Connections: Web Server connects to the Application Server through an API (or RESTful, ...).
- Node "Database Server":
 - Component: MySQL
 - Description: The Database Server houses the MySQL database, storing critical data. The Application Server communicates with the Database Server to retrieve and update information throughout the restaurant system.
 - Connections: Application Server connects to the Database Server using the TCP/IP protocol.

6. Implementation View

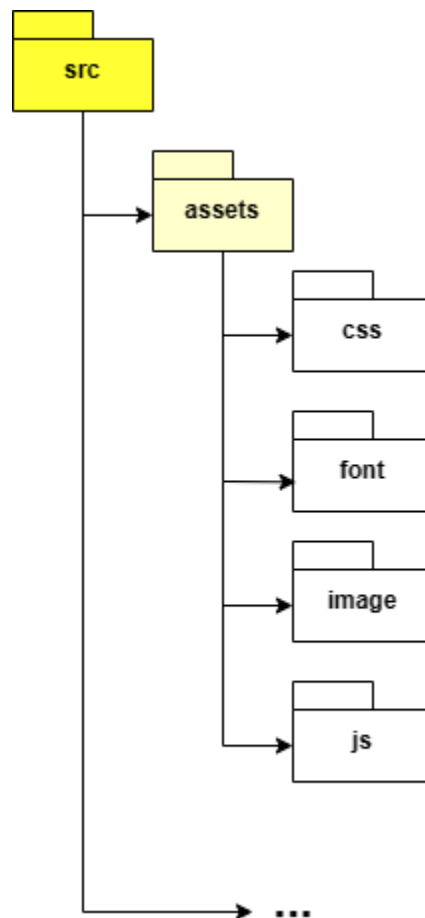
- Overall View

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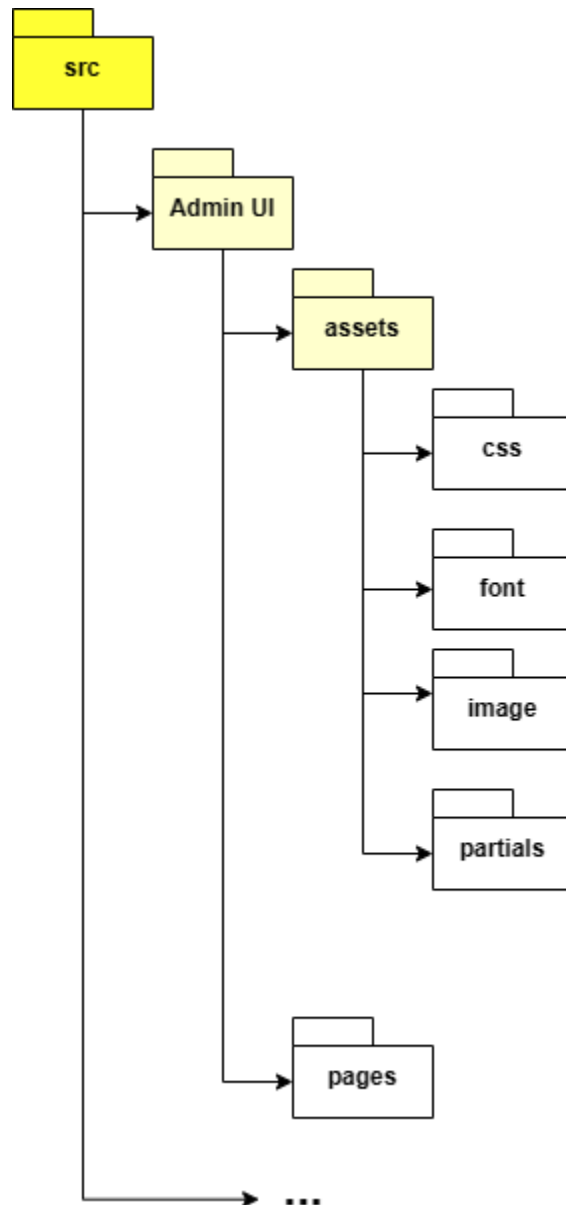
- assets: This folder contains elements such as .css files, font files, image files, etc. to define the font style, and page style.

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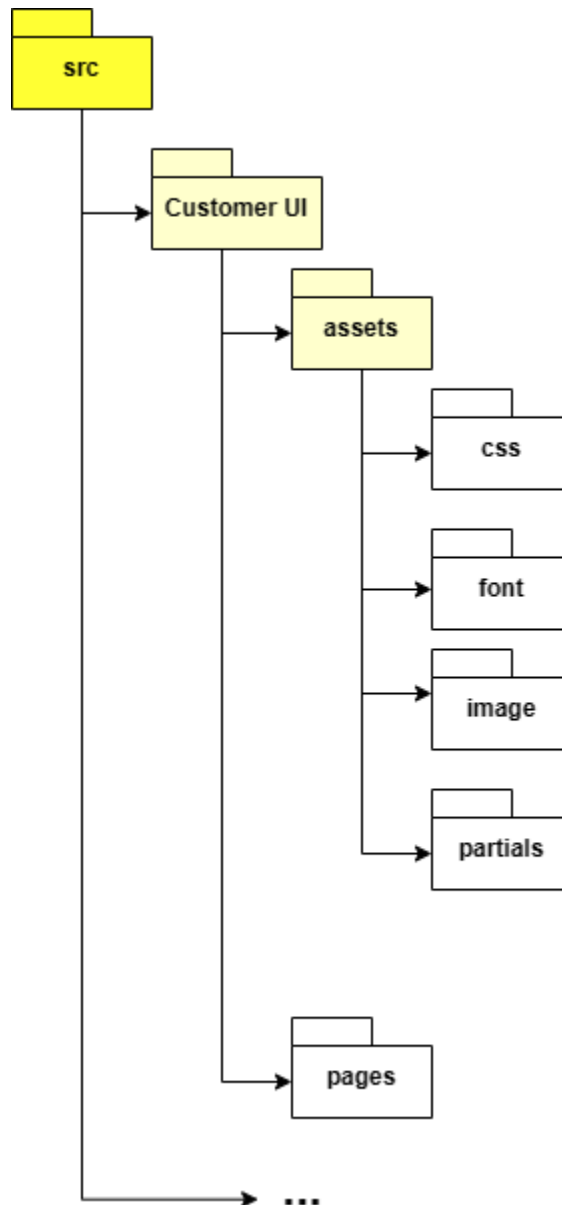
- Admin UI: This folder contains mainly files served for customers for viewing purposes. Like its name, the folder 'css', 'font' and 'images' contains files related to the decoration and visualization of the website. Folder 'partials' contains the components which are essential for every pages. Folder 'pages' contains files related to the pages which admin has access to such as Staff, Food, Customer and Invoice.

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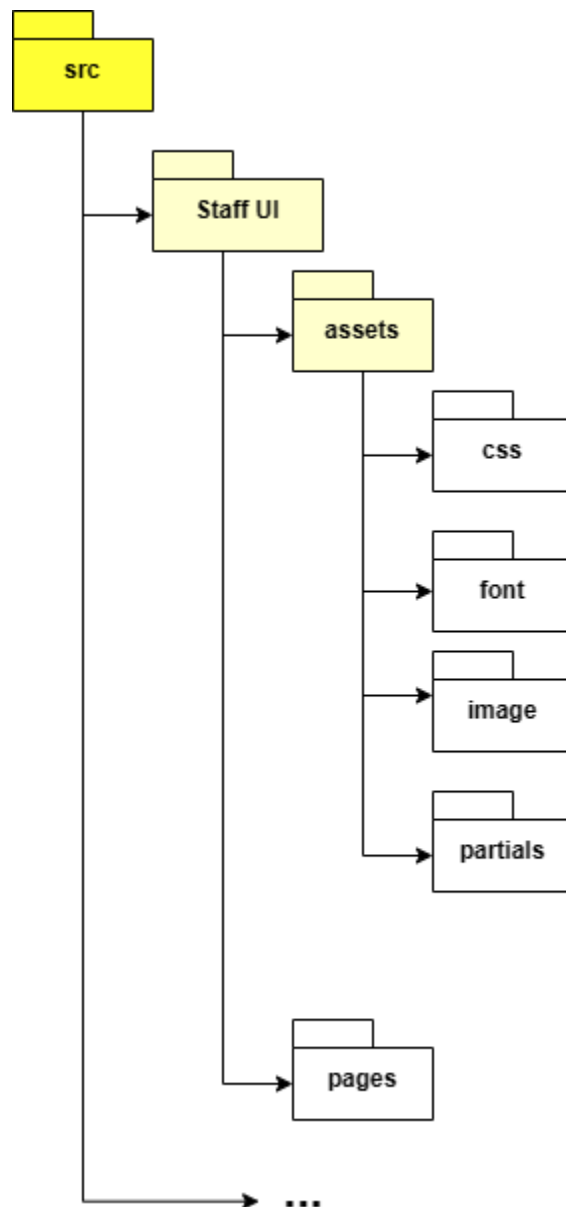
- Customer UI: This folder contains mainly files served for customers for viewing purposes. The pages that customers have permission to interact with are Homepage, Profile, Menu and Reservation.

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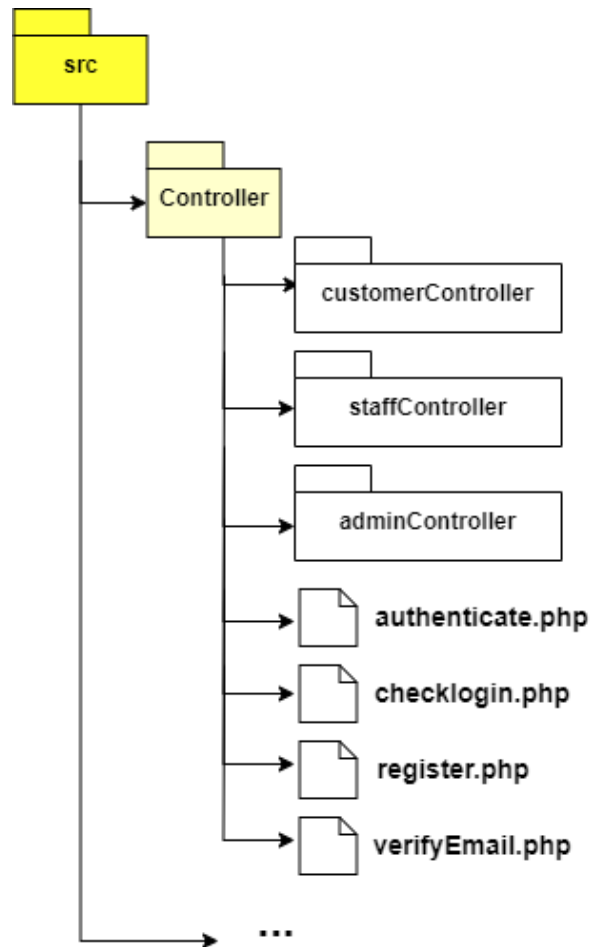
- Staff UI: This folder contains mainly files served for customers for viewing purposes. Like its name, the folder 'css', 'font' and 'images' contains files related to the decoration and visualization of the website. Folder 'partials' contains the components which are essential for every pages. Folder 'pages' contains files related to the pages which staff has access to such as Order and Reservation.

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- Controller: The "Controller" directory serves as a pivotal component in the system, orchestrating the flow of data and managing page navigation. Within this directory, three subdirectories (adminController, staffController, and customerController) are organized to streamline the handling of administrative, staff, and customer-related functionalities. Each subdirectory is specifically tailored to cater to the distinct roles and responsibilities associated with these user types.

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- vendor: This folder contains elements to create PHPMailer classes and Composer to send verification email to users.

