

RESTAURANT WEBSITE

TABLE BOOKING - FOOD ORDERING



SOFTWARE DESIGN DOCUMENT

SOFTWARE ENGINEERING LAB

FIFTH SEMESTER 2021

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1. Introduction

The restaurant website is a web-based application that is operated on a web server with its data being retained in a database. It is designed to enable the registered customer to view and order the offered food item of their choice, track the delivery of their order and also enable them to reserve a table at the restaurant at a specified time in accordance with its availability. The website enables the admin to initialize a table for the customer, control table functions remotely to assist the customer, confirm and send orders to the food preparation staff, and finalize the customer's bill. The website will also enable the delivery person to update the delivery status and confirm when the order has been delivered successfully to the customer. The website contains full accountability and logging systems and supports supervisor actions to account for exceptional circumstances, such as a meal being refunded or walked out on. In order to achieve the design, HTML, CSS & Javascript were used for the front-end while the backend was designed using PHP & MySQL.

2. Design considerations

This section describes the factors that are taken into consideration for the design of the restaurant website. They will have to be addressed or resolved before embarking on a complete design solution.

2.1 Assumptions

The design of the restaurant website makes several assumptions about the software and hardware requirements of the website. It is assumed that the target hardware will provide a capacity for website deployment and not require customised embedded firmware to be written. This entails sufficient memory and permanent storage space and the adequate CPU for the application. It is further assumed that devices of sufficient processing capability and battery life will be utilised. The devices employed by the system should facilitate being utilised or left on for extended periods (sufficient for daily use) and that they are programmable in the same fashion as x86 architecture computers. The deployment machine is assumed to have MySQL database components installed, as they are required for the backend implementation of the website.

2.2 Constraints

The restaurant website is a live system and a fully web-based application. This website shall be developed using HTML, CSS, Javascript, PHP & MySQL.

2.3 Design methodology

The restaurant website is/will be using an iterative waterfall model due to its well structured, organised way of approach and its ability to fix the defect whenever found.

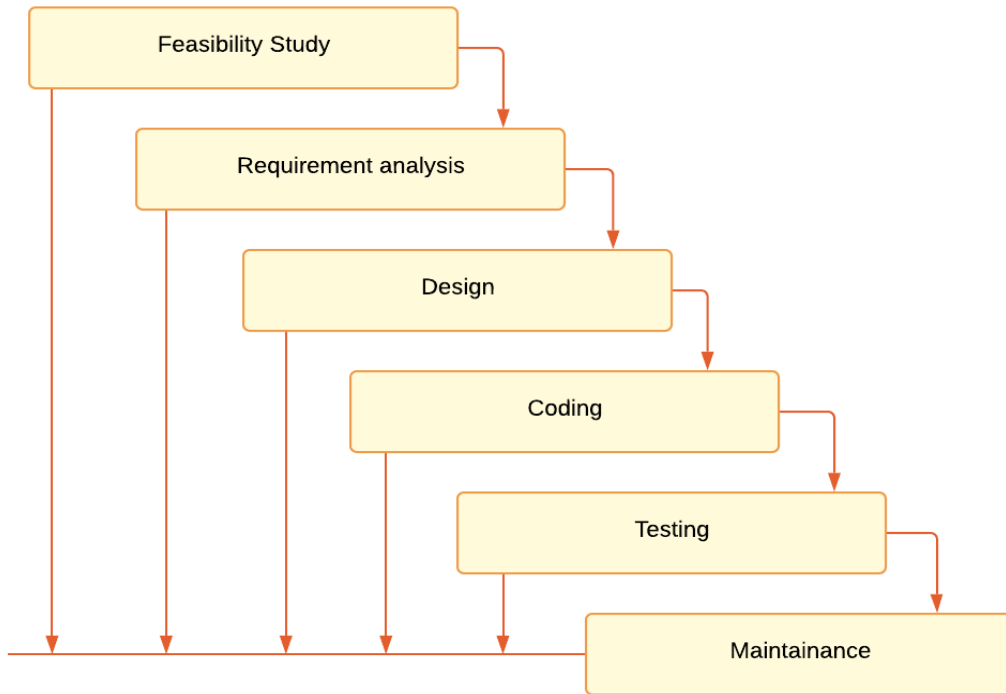


Figure 1: Iterative Waterfall Model.

2.4 System environment

System scalability and security are the set of variables which defines the aspect of process execution of the restaurant website. The website will accommodate scalability allowing flexibility within the system to improve, update and modify easily to go hand on hand with the improving technological advances.

3. Architecture

3.1. System Design

After the system has been implemented the mapping shall take place according to following:

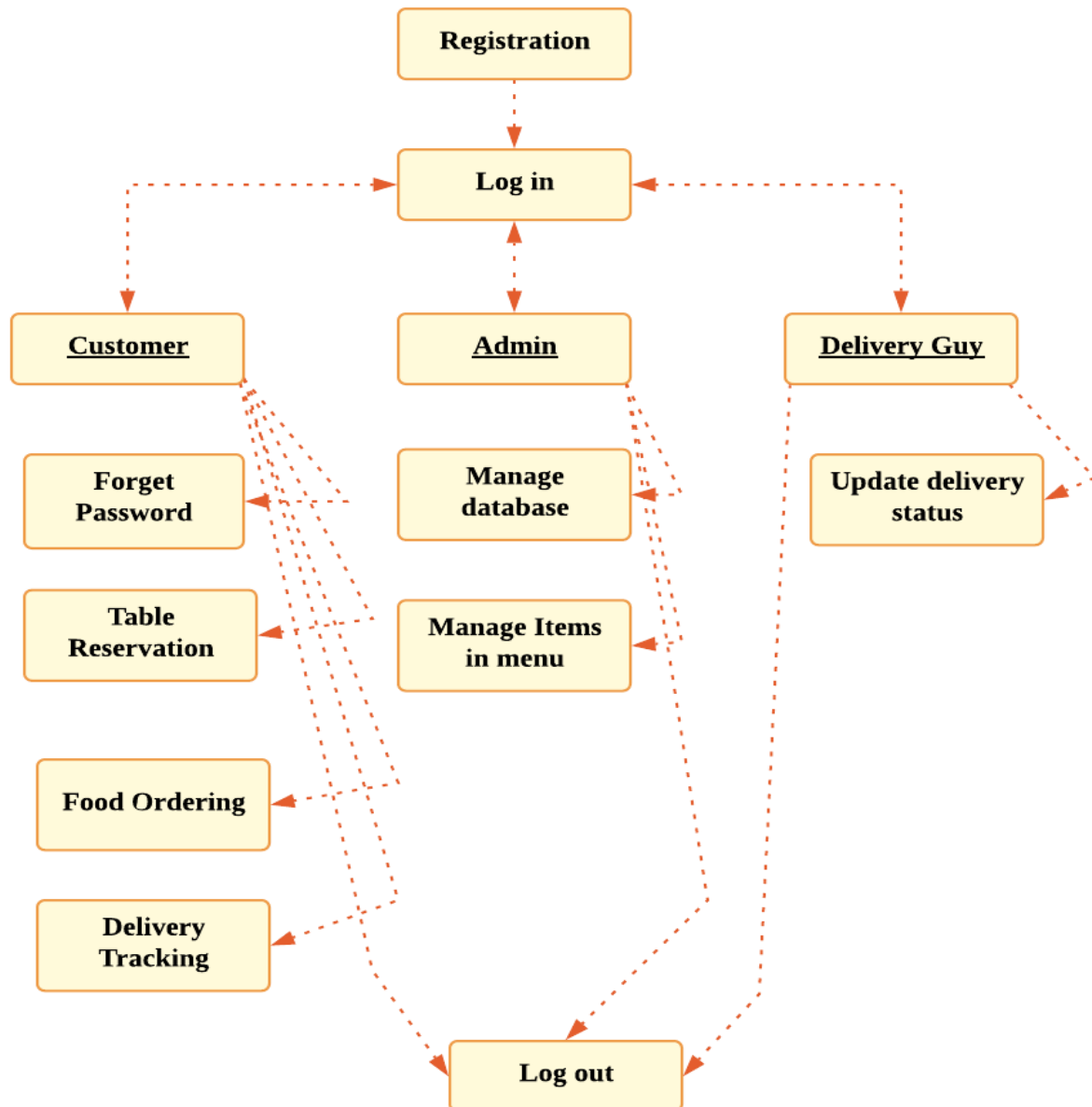


Figure 2: System Design Diagram

3.2. Functional Decomposition Tree

The main functions of the website are decomposed into smaller sub-functions or sub-modules. The website shall take place following the structure of organization after implementation. The decomposition is stable and functions should be made highly cohesive.

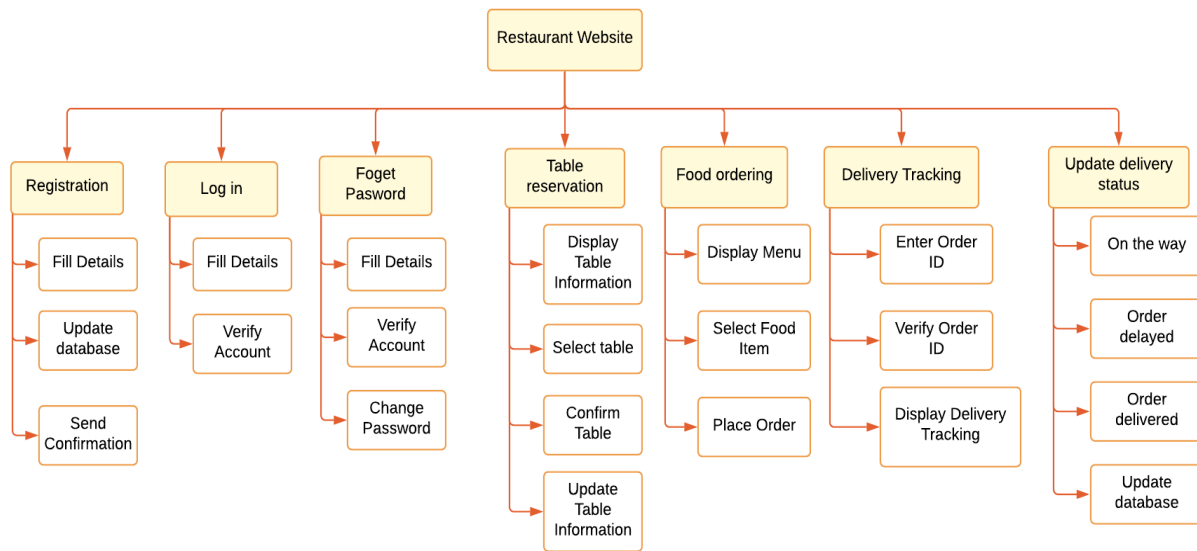


Figure 3: Functional Decomposition Tree

Modules involved in the system:

1. Registration:

This module is required for the registration of new users to access the website's services.

- **Fill details:**

The user fills in the necessary details on the interface.

- **Update Database:**

The website retains the user's information and updates it in the database.

- **Send Confirmation:**

The user is intimated about the registration credentials and confirmation via email/SMS.

2. Login:

This module is required for the user to login to the website to access the website's services

- **Fill details:**
The user fills in the necessary details on the interface.
- **Verify Account:**
The website cross-checks the database to verify the user's account.

3. Forgot Password:

This module is required in case the user forgets their account's password.

- **Fill details:**
The user fills in the necessary details on the interface.
- **Verify Account:**
The website cross-checks the database to verify the user's account.
- **Update Password:**
The user updates their account's password and the new password is updated in the database.

4. Table Reservation

This module is required to reserve the available tables in the restaurant based on the customer's choice.

- **Display Table information:**
The website displays the tables available in the restaurant for a reservation.
- **Select Table:**
The Customer selects an available table of their choice.
- **Confirm Table:**
The Customer confirms their choice and the information is retained in the database.
- **Update Table Information:**
The website updates the available table information.

5. Food Order:

This module is required for the customer to order the offered food items of the restaurant.

- **Display Menu:**

The website displays the menu of the restaurant.

- **Select Food Item(s):**

The Customer selects the offered food item(s) of their choice and the website retains it in the cart.

- **Place Order:**

The Customer places their order and the website retains the information in the database.

6. Delivery Tracking:

This module is required to track the delivery of the customer's order.

- **Enter Order ID:**

The customer fills in their Order ID.

- **Verify Order ID:**

The website cross-checks the database to verify the Order ID.

- **Display Delivery Tracking:**

The website displays the customer's order's delivery tracking information.

7. Update Delivery Status:

This module is required to update the delivery status of the customer's order by the Delivery Person.

- **On the way:**

The Delivery Person updates the delivery status as "On the way" when they receive the customer's order from the restaurant.

- **Order delayed:**

The Delivery Person delays the order in case of an unforeseen event.

- **Order delivered:**

The Delivery Person updates the delivery status as "Order delivered" on successful delivery.

- **Update Database:**

The website updates the database on successful delivery.

8. Update an Entry:

This module is required to update an entry by the Admin.

- **Update Database:**

The database is updated if any changes are made by the Admin.

- **Update Website:**

The website is updated in accordance with the changes made in the database.

3.3. Context Diagram

The Context diagram describes the main actors interacting with the system.

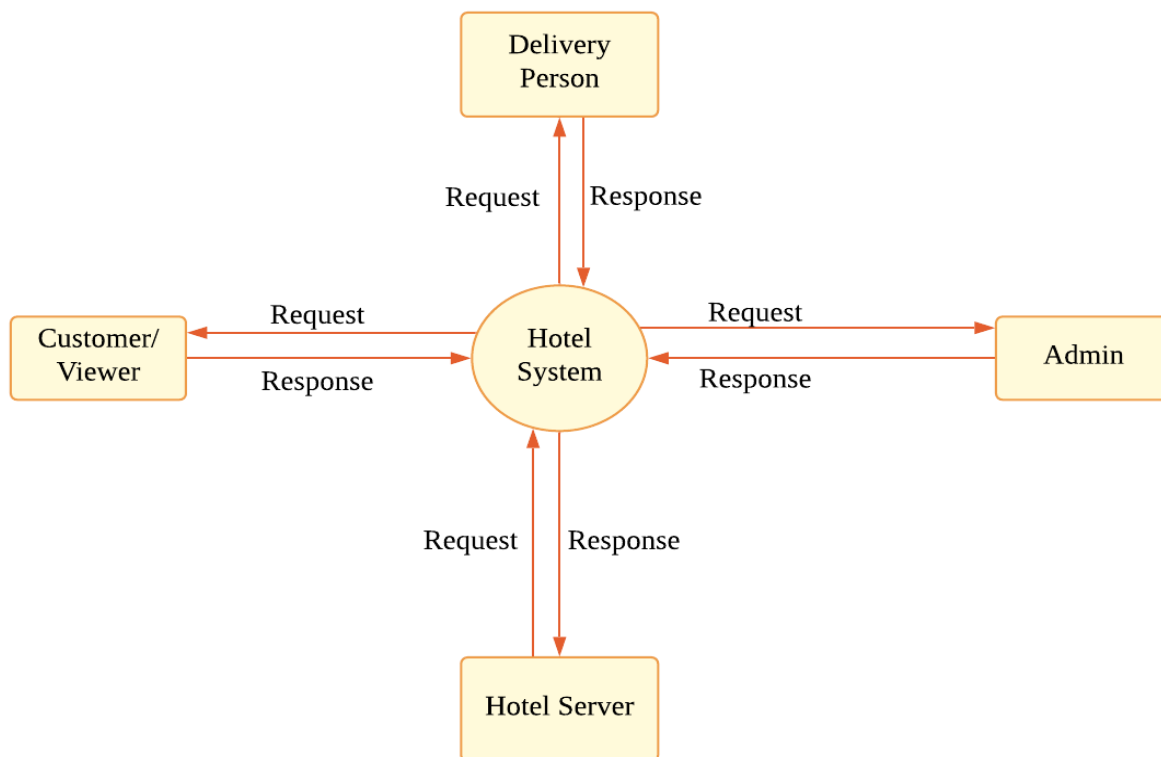


Figure 4: Context Diagram.

3.4. Data Flow Diagrams

Level 1 DFD for Customer

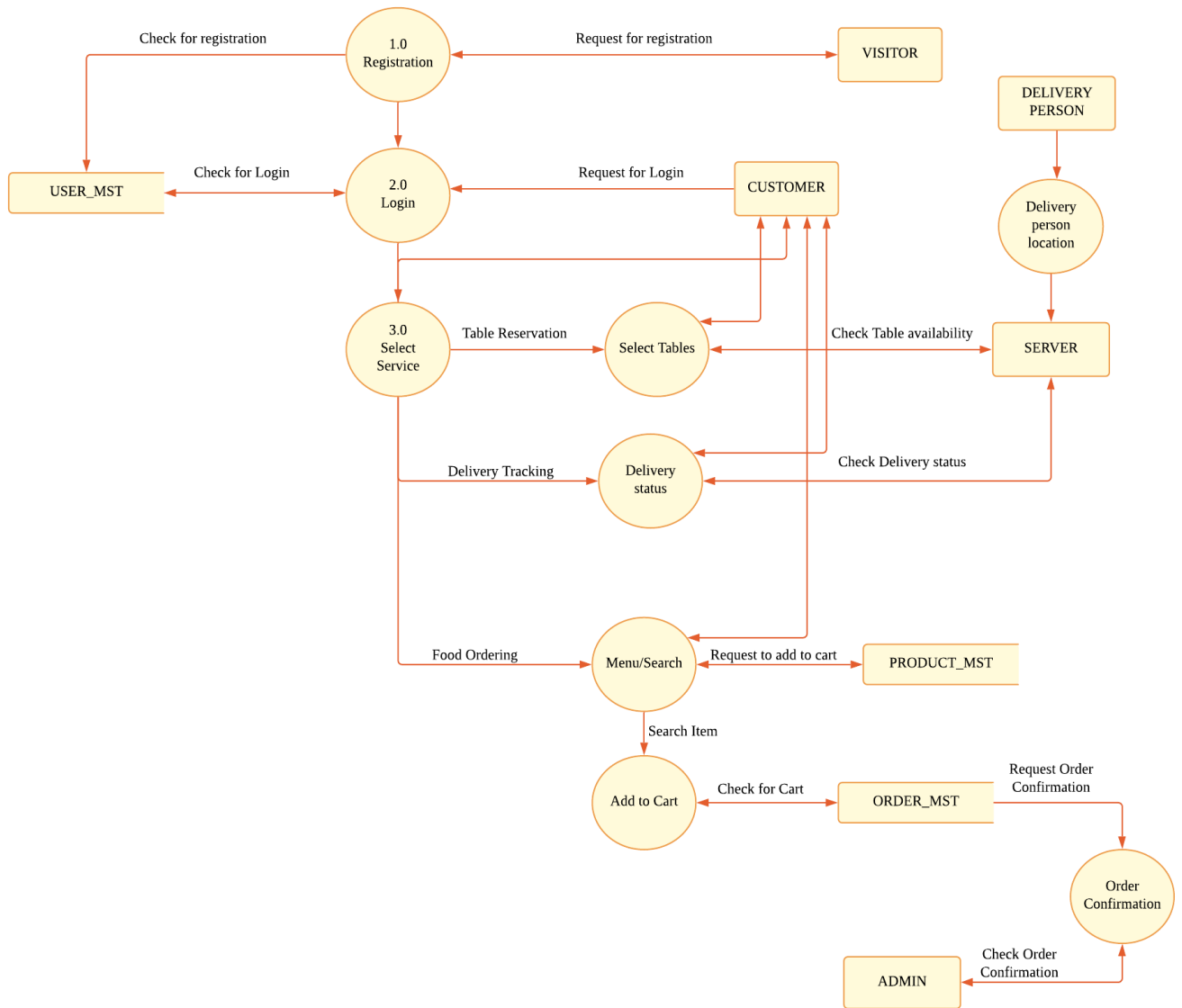


Figure 5: Level 1 DFD for Customer.

Level 2 DFD for Customer

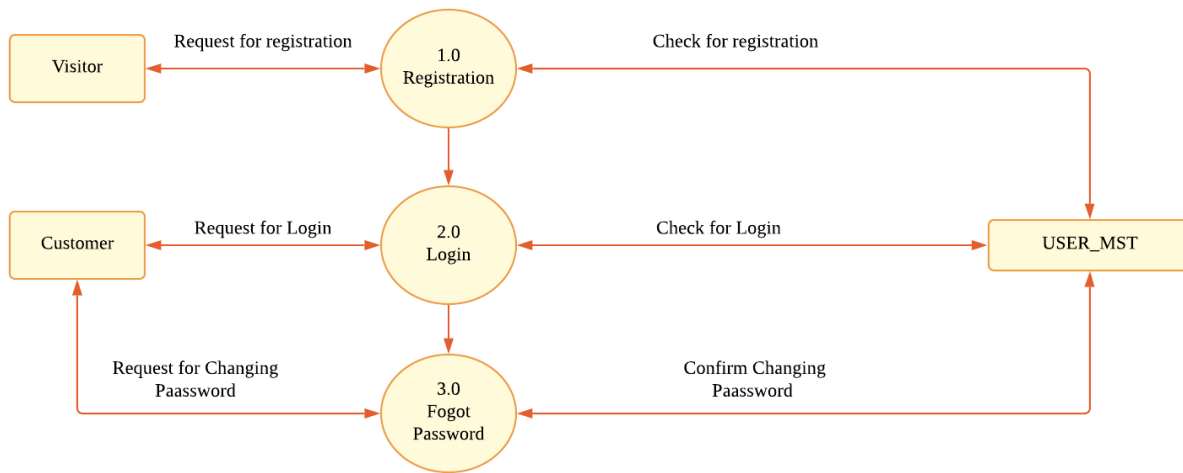


Figure 6: Level 2 DFD for Customer.

Level 1 DFD for Admin

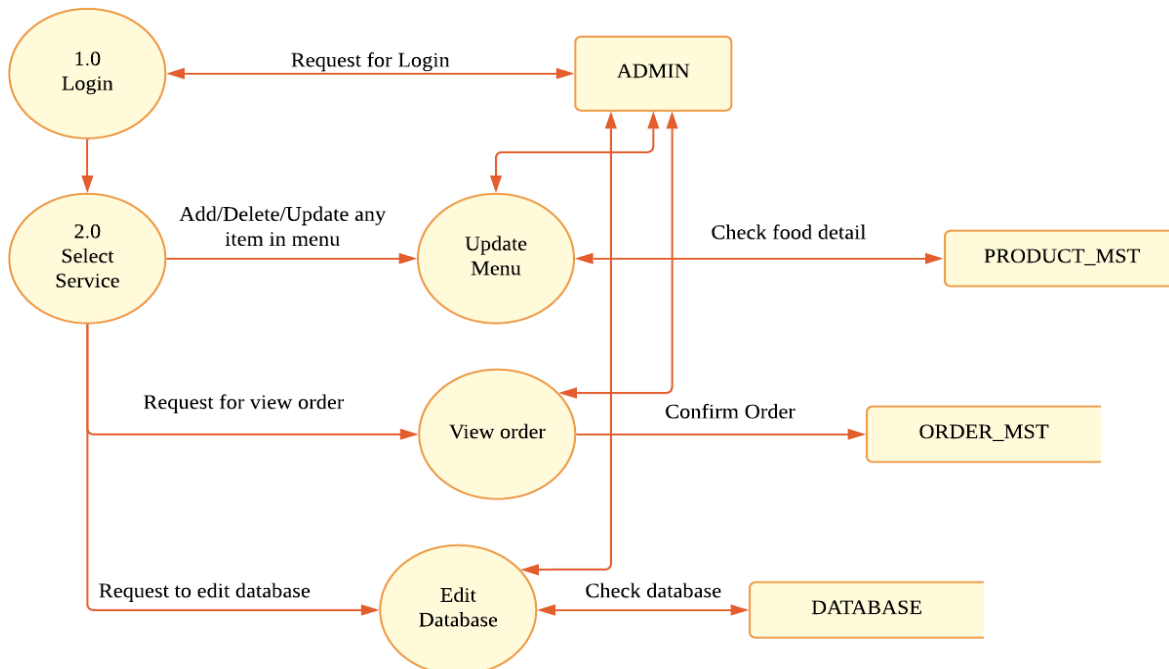


Figure 7: 1 Level 1 DFD for Admin.

3.5. Data Dictionary

1. Employee.

Attributes	Type	NULL	Default
Employee_id (primary key)	int(10)	NO	NONE
user_name	varchar(45)	YES	NULL
password	varchar(45)	YES	NULL
Mobile_No	bigint(10)	YES	NULL
Status	varchar(20)	yes	NULL
date_of_joining	timestamp	YES	NULL

2. Customer.

Attributes	Type	NULL	Default
customer_Id (primary key)	int(10)	NO	NONE
user_name	varchar(45)	YES	NULL
password	varchar(45)	YES	NULL
first_name	varchar(45)	YES	NULL
last_name	varchar(45)	YES	NULL
mobile_No	bigint(10)	YES	NULL
address	varchar(150)	YES	NULL
date_of_joining	timestamp	YES	NULL

3. Menu.

Attributes	Type	NULL	Default
food_id (primary key)	int(10)	NO	NONE

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food_name	varchar(45)	YES	NULL
food_description	varchar(200)	YES	NULL
price	float(6,2)	YES	NULL
category_name	varchar(6)	YES	NULL

4. Table list.

Attributes	Type	NULL	Default
table_id (primary key)	int(10)	NO	NONE
no_of_seats	int(10)	YES	NULL
additional_seats_possible	int(10)	YES	NULL

5. Order.

Attributes	Type	NULL	Default
order_id (primary key)	int(10)	NO	NONE
order_date	timestamp	YES	NULL
status	varchar(45)	YES	NULL

6. Cart

Attributes	Type	NULL	Default
cart_id (primary key)	int(10)	NO	NONE
order_id	int(10)	YES	NULL
customer_id	int(10)	YES	NULL
food_id	int(10)	YES	NULL
quantity	int(10)	YES	NULL

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total	int(10)	YES	NULL
status	varchar(45)	YES	NULL

7. Booked Tables

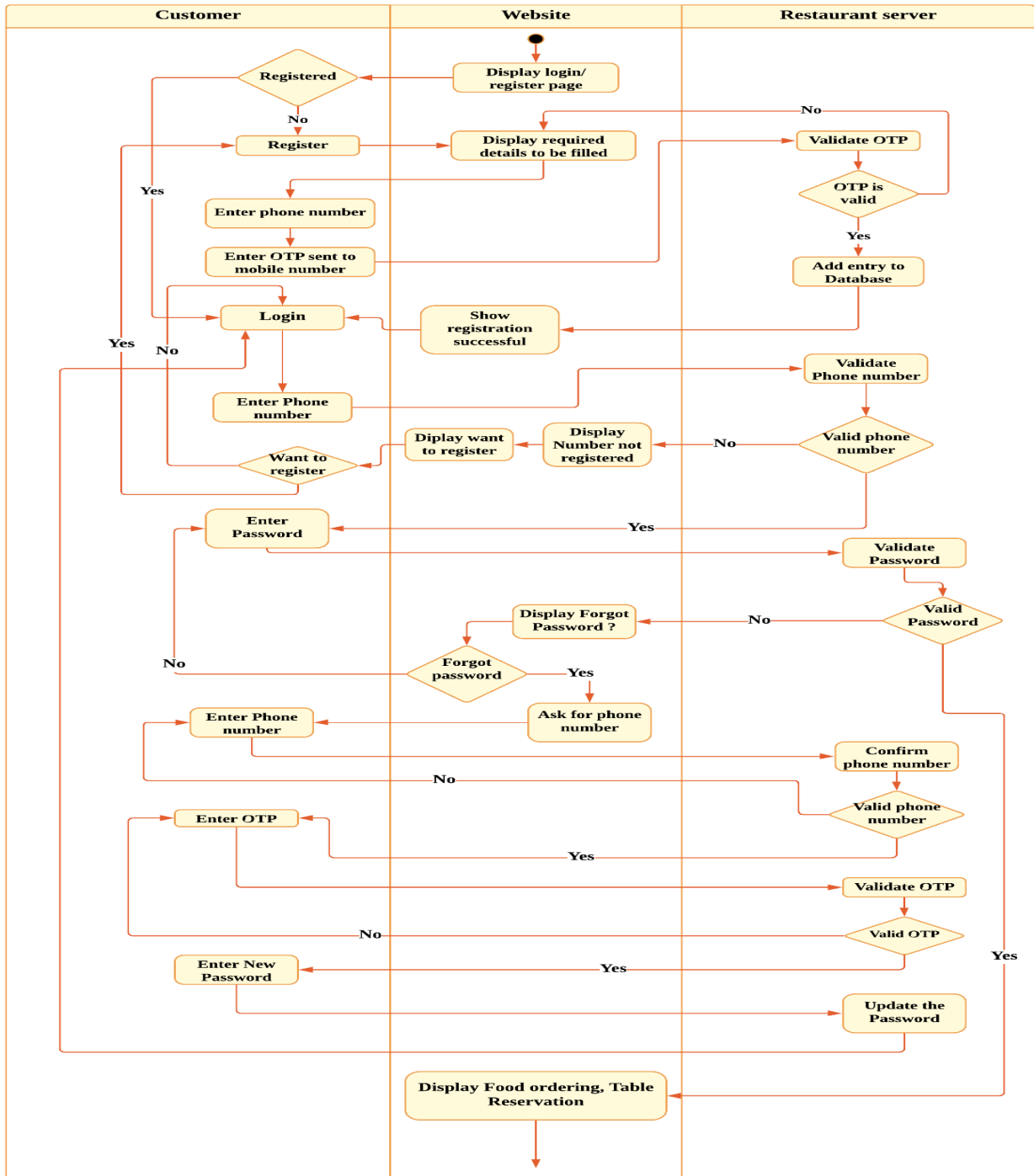
Attributes	Type	NULL	Default
booking_id (primary key)	int(10)	NO	NONE
customer_id	int(10)	YES	NULL
table_id	int(10)	YES	NULL
no_of_seats_booked	int(10)	YES	NULL
booking_timings	timestamp	YES	NULL
additional_seats	int(10)	YES	NULL
status	varchar(45)	YES	NULL

8. Delivery.

Attributes	Type	NULL	Default
delivery_id (primary key)	int(10)	NO	NONE
order_id	int(10)	YES	NULL
employee_id	int(10)	YES	NULL
address	varchar(200)	YES	NULL
total	int(10)	YES	NULL
time	timestamp	YES	NULL
status	varchar(45)	YES	NULL

4. Component Design

4.1. Activity Diagram



5. User Interface Design

The UI is designed according to the UI design principles.

- **The structure principle:**
UI is organized in such a way that related things are combined together and unrelated things are separated.
- **The simplicity principle:**
It is easy to follow the provided interface. In the case of a mistake, the system displays an error message.
- **The visibility principle:**
All the system's functions are available through UI. It does not overwhelm users with too many alternatives.
- **The feedback principle:**
Through the system of messages, the design keeps users informed of actions, errors, or exceptions.
- **The reuse principle:**
In design, the same names were used to perform the same operations with different objects in order to reduce ambiguity.

The sample user interface screens and forms that the user will interact with include:

1. Home Page:

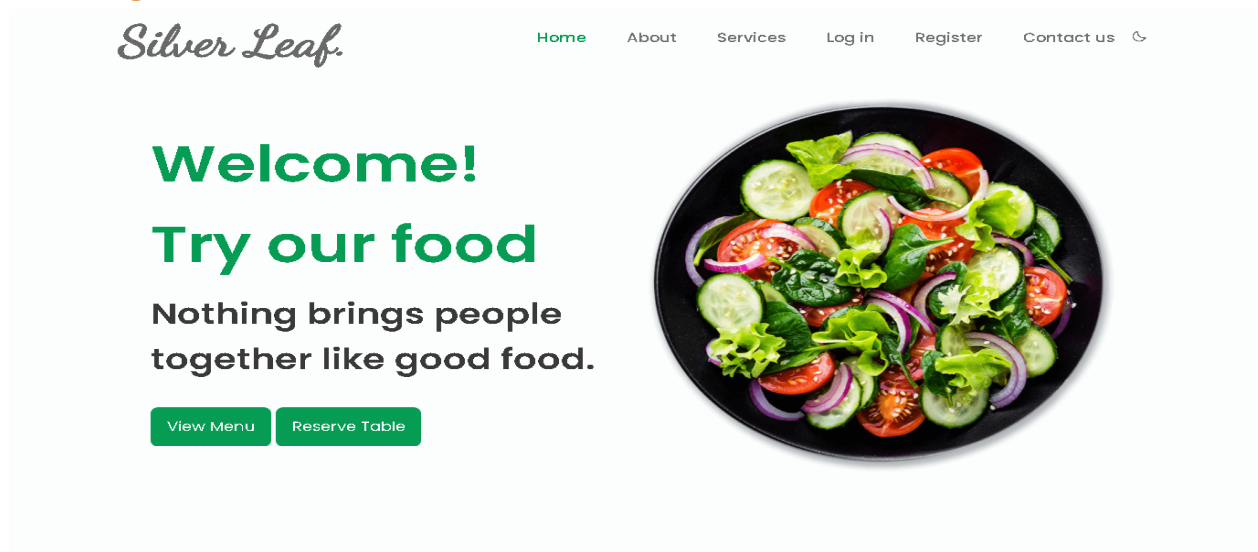


Figure 9: Home Page

It is the main web page through which the users can navigate around the website.

2. Registration Page:

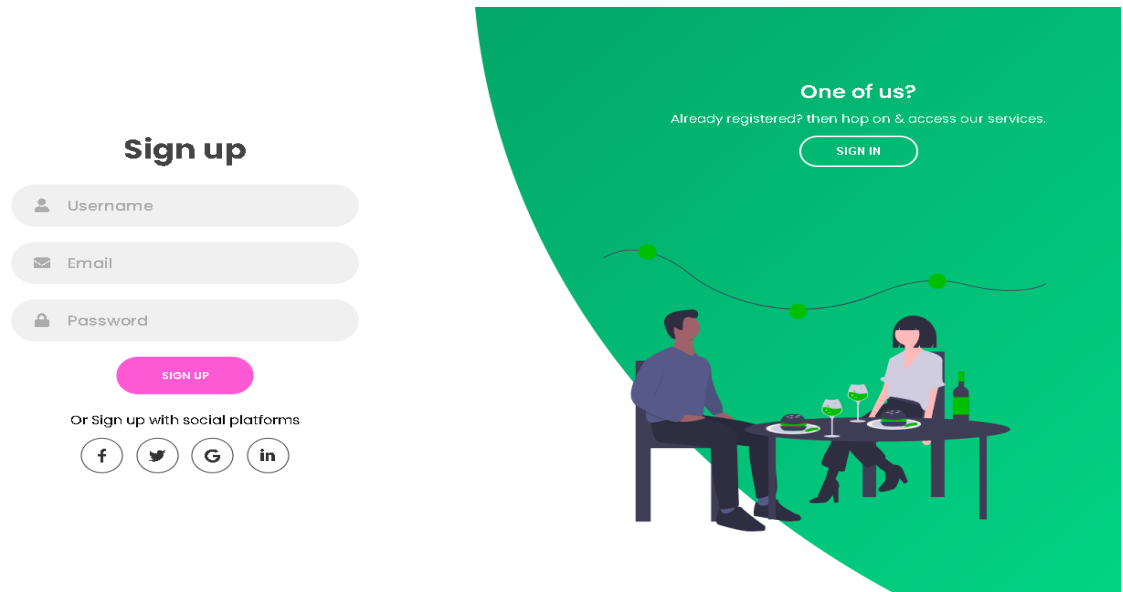


Figure 10: Registration Page.

It is the web page where the user will enter their required credentials to register themselves.

3. Login Page:

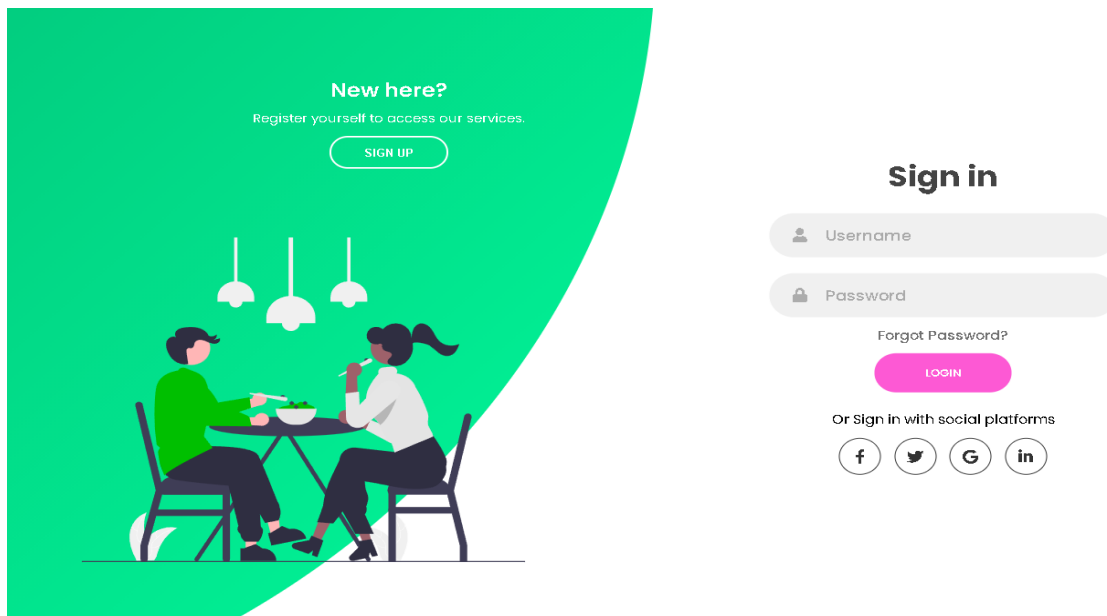


Figure 11: Login Page.

It is the web page where the user will enter their required credentials to access the services of the website.

4. Menu Page:

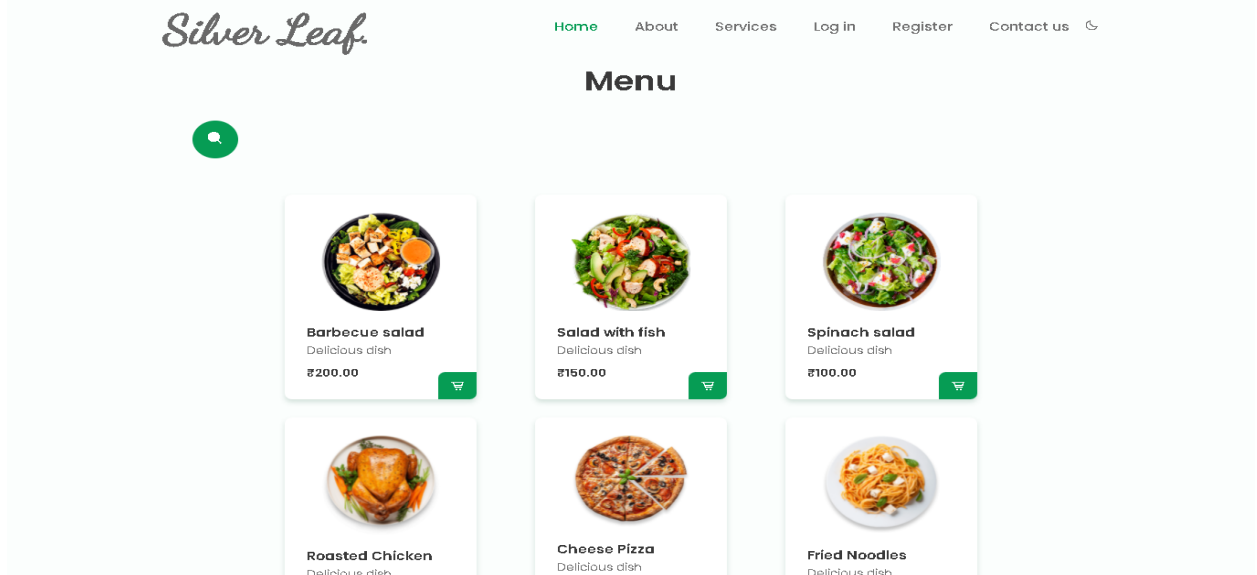


Figure 12: Menu Page.

It is the web page in which the customer can view and navigate through the offered food items and order the item of their choice.

5. Table Reservation Page:

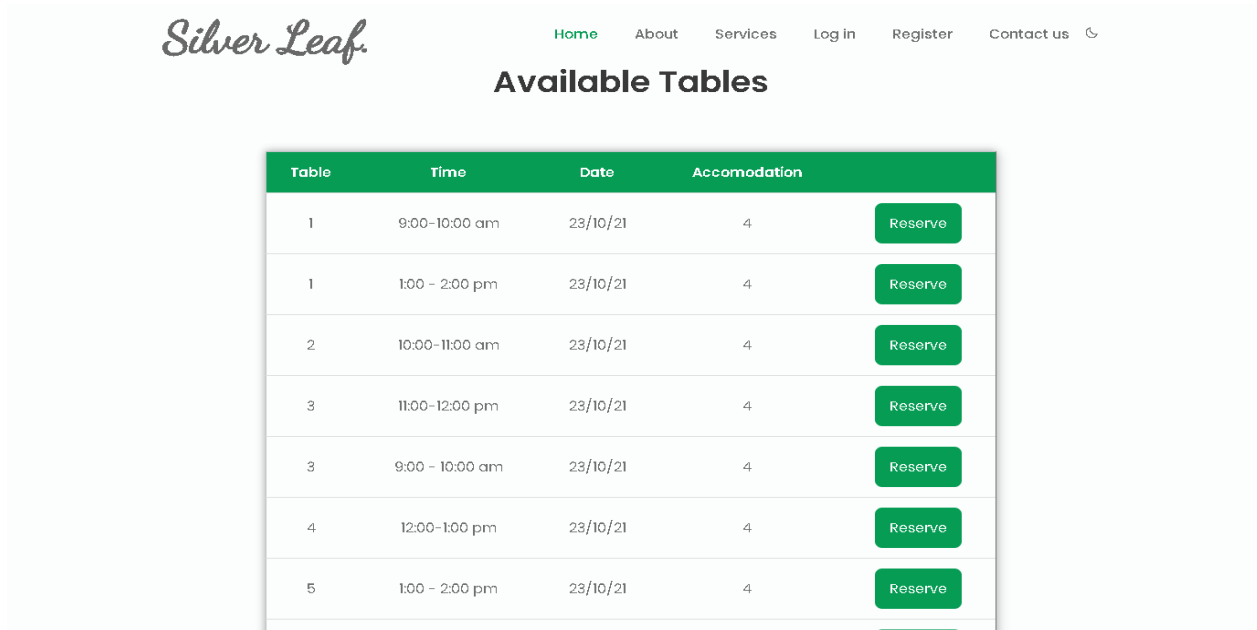


Figure 13: Table Reservation Page.

It is the web page in which the available tables for reservation are displayed.

6. Delivery Tracking Page:

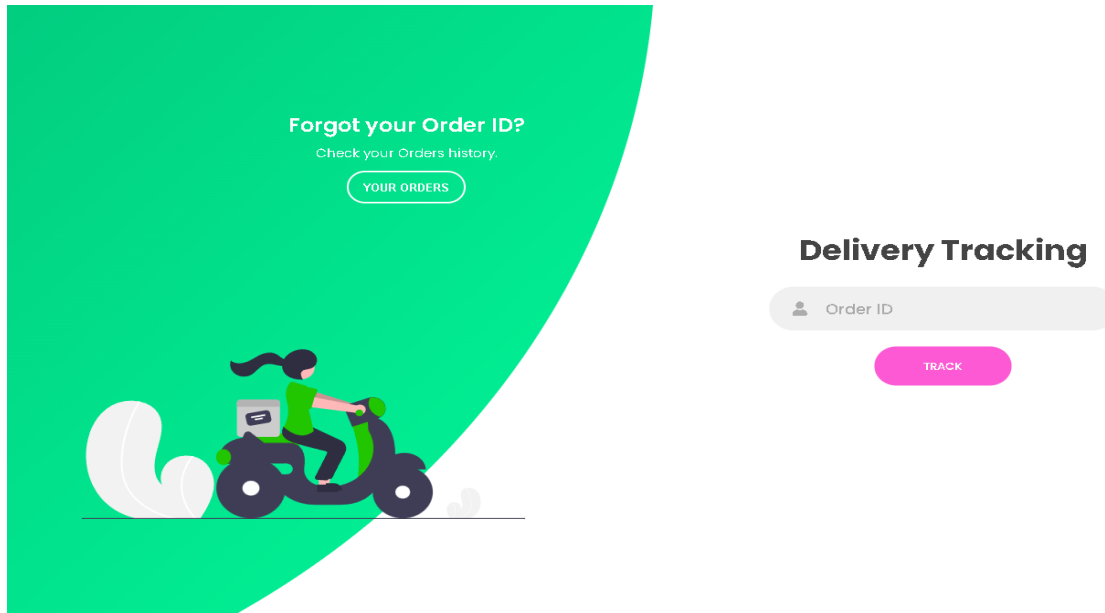


Figure 14: Delivery Tracking Page.

It is the webpage in which the customer enters their Order ID to begin tracking their order's delivery.

7. About Us Page:

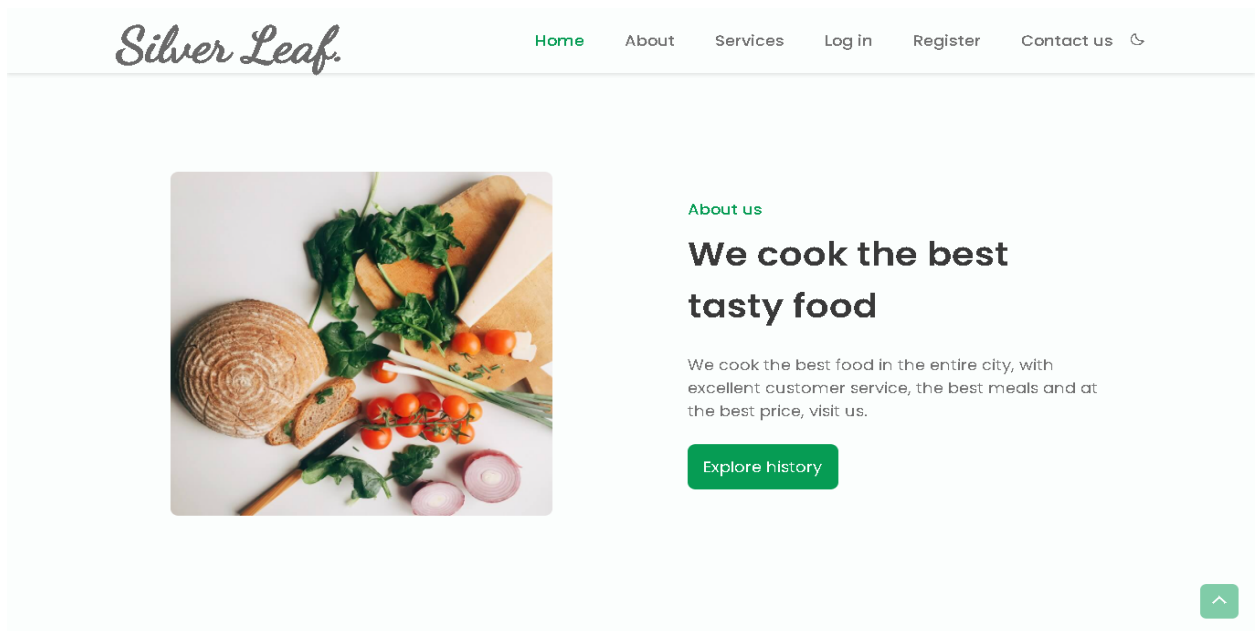


Figure 15: About Us Page.

It is the web page in which information about the restaurant is displayed.

8. Services Page:

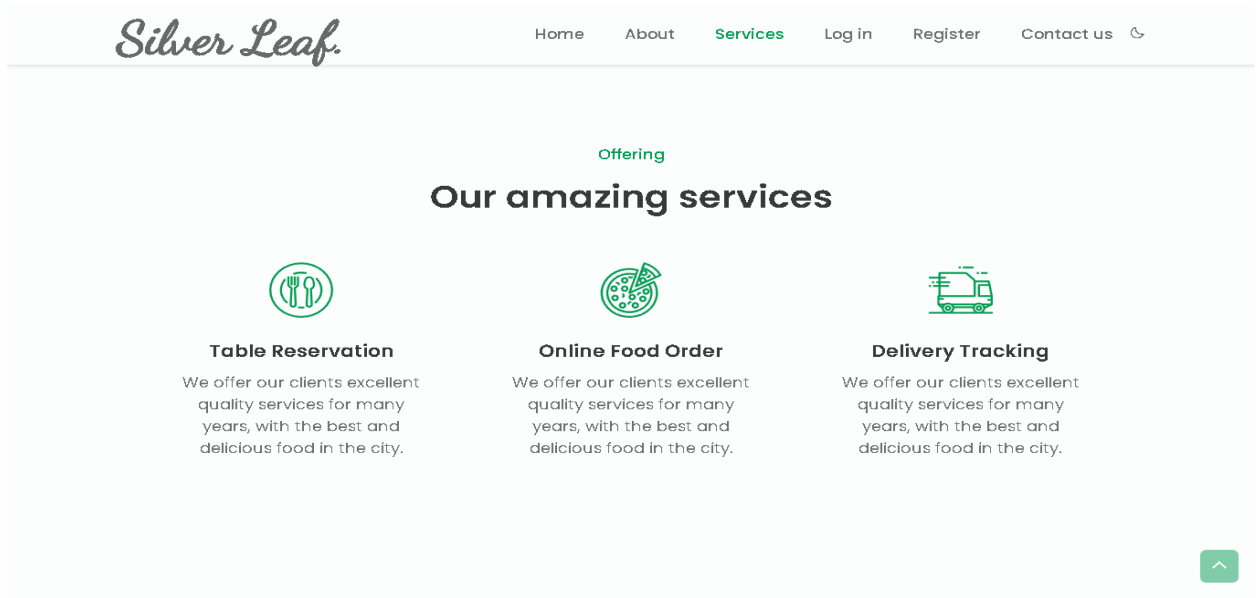


Figure 16: Services Page

It is the webpage in which the online services of the website are displayed.

9. Contact Us Page:

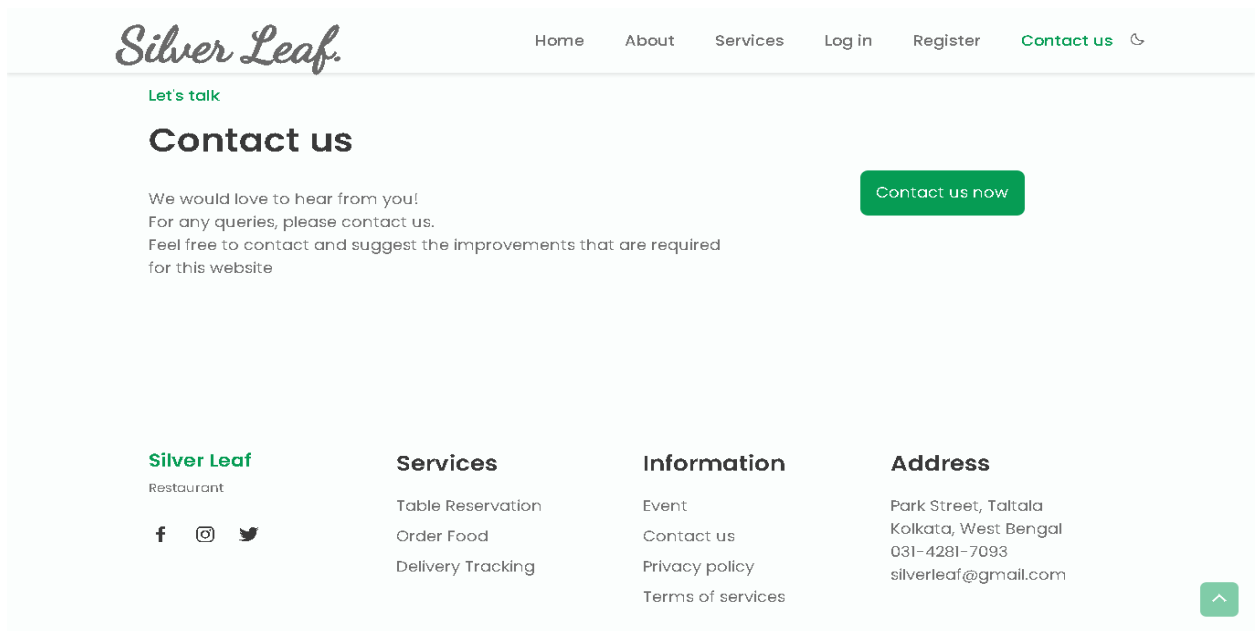


Figure 17: Contact Us Page.

It is the webpage through which a user can get in touch with the restaurant in case of some unexpected issue or to provide feedback.