SPA Automation Software (SAS)

Software Engineering Project

MCA

INDIRA GANDHI DELHI TECHNICAL UNIVERSITY FOR WOMEN

KASHMERE GATE, NEW DELHI

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Under the Supervision of

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ACKNOWLEDGEMENT

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PROBLEM STATEMENT

SPA Automation Software (SAS) is engineered to provide services such as account maintenance, bill generation, booking of appointments with aestheticians and also provides information to client about the availability of spa services and services providers. This software connects service provider with the registered user directly. This software provides a customized solution to the clients for their spa services.
This software is module in nature and provides following functionalities: -

#Actor-1 (Client)

User's View: -

- Login: - This functionality allows the registered user to login into the software using their username and password. Here, we first take phone number then login window appears followed by authentication of account.
- Sign Up: - This function provides user with an interface to create an account with phone number followed by sign up panel. User can create an account by specifying the unique username and password. They can also create account using their social media account like Facebook.
- Generate OTP: - For authentication purpose before sign up or login. This function sends OTP on user's specified phone number and then verifies it. This functionality is for preventing unauthorized access to user's account.
- Reset/Forgot Password: - This functionality is designed in order to reset the password in case if user forgets his/her password.
- View History: -
  - Past Appointments: - This function enables client to view their past appointments.
  - Past Bills: - This field maintains the record of bills paid in past for earlier appointments.
  - Submit Questionnaire: - The goal of this function is to provide customized service by asking questions regarding health and daily routine.
- Upload Questionnaire: - The goal of this functionality is to provide client the authority to ask random questions from the service provider.
- Book Appointment: - This functionality is for booking an appointment with service provider on the specified date.
- Date: - Checks whether on this date, service and service providers are available or not.
- Services: - Specifies the services and service providers available. Here, we have two choices whether the services are taken within the spa or at client's place. If services are provided at client's place, then software tracks client's location, confirms on call and service providers can directly coordinate with client by using chat box.
- Request Cancellation: - This functionality allows client to have an option of cancelling the appointment.
- Bill generation and Payment: - This functionality is used to generate bill provided with offers and to accept payment by client.
- Payment Method
  - Gpay (UPI)
  - Payment By Cash
- Submit Feedback: - This functionality is for taking feedback from the client about the services provided to him/her.

#Actor-2 (Service Providers)

Service Provider's View:-

- Login: - This functionality allows the registered service provider to login into the software using their username and password. Here, we first take phone number the login window appears followed by authentication of account.
- Sign Up: - This function provides service providers with an interface to create an account with phone number followed by sign up panel. Service Provider can create an account by specifying the unique username and password. They can also create account using their social media account like Facebook.
- Generate OTP: - For authentication purpose before sign up or login. This function sends OTP on service provider's specified phone number and then verifies it. This functionality is for preventing unauthorized access to service provider's account.
- Reset/Forgot Password: - This functionality is designed in order to reset the password in case if service provider forgets his/her password.
- Answer Questionnaire: - This functionality is for answering the random questions asked by clients to service providers.
- View Catalogue: - This functionality is for service provider by which they can have a check of their daily routine or the appointments they are having.

#Actor-3 (Admin)

Admin's View:-

- Login: - This functionality allows the registered admin to login into the software using their username and password. Here, we first take phone number then login window appears followed by authentication of account.
- Sign Up: - This function provides admin with an interface to create an account with phone number followed by sign up panel. Admin can create an account by specifying the unique username and password. They can also create account using their social media account like Facebook.
- Generate OTP: - For authentication purpose before sign up or login. This function sends OTP on admin's specified phone number and then verifies it. This functionality is for preventing unauthorized access to user's account.
- Reset/Forgot Password: - This functionality is designed in order to reset the password in case if admin forgets his/her password.
- Update Catalogue: - This functionality allows admin to update the catalogue or appointments of each service provider.
- Update Salary: - This functionality allows admin to update updates about salary of service providers in the spa.

Software Requirements Specification (SRS)

Spa Automation Software

1. INTRODUCTION:

The following subsections of the software requirements specifications (SRS) document will provide an overview of entire software.

1.1 PURPOSE:

The sole purpose of this SRS is to list all the requirements explicitly (through communication, documents) by the customers, keeping quality of this software in mind. The intended audience for the SRS is the customer itself, software engineers, designers and everyone involved in the development of this software.

1.2 SCOPE:

I. The product that will be delivered to the customer satisfying all of its requirements will be named as SPA AUTOMATION SOFTWRAE.
II. The SAS facilitates the customer with easy access to spa facilities, this includes online booking of service provider, opting home services, and taking care of customer's need with the help of questionnaire. This takes care of the needs of the user. On the other hand it will also provide facilities like checking service provider's salary or keeping a track of their daily routine, answering the FAQs by customer.
III. SAS is software that interacts with the users through interfaces like advance booking, questionnaire, communication with service provider through call and chat facilities.

The main objective of this software is to save the time of the customer as well as the service provider, management of customer and service provider is comparatively much easier from the normal spa. This is a great option for getting the work done in a seamless way without searching and calling several service providers. This software is a hassle-free experience for getting your work done.

1.3 DEFINITION, ACRONYMS AND ABBREVIATIONS:

SAS (SPA AUTOMATION SOFTWARE): This is the name of the software.
Login: This field enables the user to login into the software.
Signup: This field enables the user to sign up into the software.
Encryption: This field ensures authenticity and security from malicious users. It verifies the user by sending an OTP to the phone number specified during login. This checks whether the user is authorized or not.
Reset/forgot password: This field helps the user in case he/she forgets the password or wants to reset it.
Questionnaire: This field takes care of customer's need by asking questions so that we don't miss out any point that will lead to an unsatisfactory result.

1.4 REFERENCES:-

1. Urban Clap App
2. Previous Project

1.5 OVERVIEW: -

The rest of the SRS document describes various system requirements, interfaces, features and functionalities in detail.

2. THE OVERALL DESCRIPTION :

This section will give an overview of the whole system. The system will be explained in its context to show how it interacts with other systems and introduce its basic
functionality. It will also describe what type of stakeholders will use the system and what functionalities are available for them. At last, the constraints and assumptions for the system will be presented.

2.1 PRODUCT PERSPECTIVE:

The Spa Automation Software (SAS) is a self-contained and an independent system. This system involves three end users i.e. 1.Customer, 2.Service Provider, 3.Admin. The database is available to make faster and easier access to data retrieval.

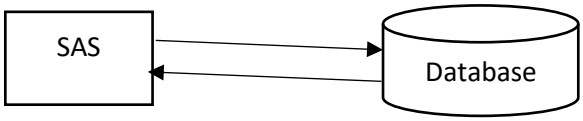


Figure 2: Logical Database

2.1.1 USER INTERFACE:-

The user interface for the system shall be compatible to any browser such as internet explorer, Mozilla or Netscape Navigator and any operating system such as IOS, android, arch Linux and FreeBSD by which user can access to the system. User interface shall be implemented using any tool or software package like GIF, JAVA APPLET, and MS FRONT PAGE etc.

2.1.2 HARDWARE INTERFACE: -

Since the application will also be running over the internet, all the hardware shall require internet connection and hence will be the hardware interface for the system. For example: Modem WAN-LAN, Ethernet, Cross-Cable.

2.1.3 SOFTWARE INTERFACE:-

1. The SAS system interacts with the admin in order to build a link between the admin and the various features such as login, sign-up, OTP generation, reset/forgot password, updating of catalogue and salary.
2. Additively the SAS system also communicates with the service providers for fetching information regarding login, signup, OTP generation, reset/forgot password, questionnaire, checking catalogue and view salary updates.
3. SAS also interacts with the clients for fetching details such as login, signup, OTP generation, reset/forgot password, history, submission of questionnaire, bookings, requesting cancellation, availability of locker rooms, payments, feedbacks.

2.2 PRODUCT FUNCTIONS:-

User must have a valid user id and password to enjoy the facilities of SAS. In case the user is registering for the first time he will have to create an account as per the mentioned rules and regulations. Once the user proceeds with successful login he/she will be provided with his/ her history, payment detail, etc. All users are authenticated to avail the services.

2.3 USER CHARACTERISTIC:-

The end users must have the basic knowledge about computer and internet, so that they can use this software system. The administrators must be well versed with database management system.

2.4 CONTRAINTS:-

The internet connection is the constraints for the application as SAS provides home services therefore internet is essential for tracing the location of the customer.

3. SPECIFIC REQUIREMENTS:

3.1. EXTERNAL INTERFACES:

3.1.1 USER INTERFACE:-

The user interface for the system shall be compatible to any browser such as internet explorer ,Mozilla or Netscape Navigator and any operating system such as IOS, Android, arch Linux and free BSG by which user can access to the system. User interface shall be implemented using any tool or software package like GIF, JAVA APPLET, and MS FRONT PAGE etc.

3.1.2 HARDWARE INTERFACE: -

Since the application will also be running over the internet, all the hardware shall require internet connection and hence will be the hardware interface for the system. For example: Modem WAN-LAN, Ethernet, Cross-Cable.

3.1.3 SOFTWARE INTERFACE:-

- Operating system:- android, IOS, arch Linux and FreeBSD
- MS Access 2003 as DBMS for Database
- Visual Basic 6.0(for coding/developing the software)

3.1.4 COMMUNICATION INTERFACE:-

- Chat Box: - The client and service provider can communicate through chat box.

3.2 FUNCTIONS:-

The software provides following functionalities:-

- Login module: - This functionality allows the registered user to login into the software using their id and password.
- Sign-up module: - This function provides user with an interface to create an account with phone number followed by specification of id and password.
- OTP Generation module: - For authentication purposes this function sends OTP on specified phone no. and then verifies it.
- Reset/Forgot Password module: - This functionality is designed in order to reset the password in case user forgets his/her password.
- History module: - Within this module user can view his/her past appointments, medical records, prescribed products, past bills.
- Questionnaire module: - The goal of this function is to provide customized service.

- Booking module: - This module is used to book an appointment with service providers.
- Request Cancellation module: - This modules is concerned with request cancellation process.
- Locker module: - It is for checking the availability of lockers and their allotment.
- Billing module: - Bill will be generated.
- Payment methods
  - Cash
  - Card
- Feedback module: - This is for taking feedback from the client regarding services provided to them.

3.3 PERFORMANCE REQUIREMENTS:-

- Static Numerical Requirements:-
  The no. of terminals and simultaneous users to be supported will be equal to the no. of user inclusive of clients, service provider, and admin.
- Dynamic Numerical Requirements: -
  The 90% of the task and data shall be processed in less than 5 sec.

3.4 DESIGN CONSTRAINTS: -

- Standard development tools: - The system shall be build using a standard webpage development tool that conforms to be one of the following IDE (Integrated development environment), cloud 9 IDE, code lobster.
- Web BASED products: -
  1. There are memory requirements.
  2. The computers must be equipped with web browser such as internet explorer.
  3. The data must be stored in such a way that allows the client easy access to it.
  4. The response time for loading the data should take no longer than 30 sec.
  5. The basic knowledge of computers is required to use the software.

3.5 SOFTWARE SYSTEM ATTRIBUTE: -

3.5.1 Safety and security consideration: -

- The system shall automatically log out all customers after a period of inactivity.
- The system shall not leave any cookies on the customer's system.
- An OTP is sent to the user specified contact no. for authentication purposes.

3.5.2 DATA STORAGE: -

The system's back-end servers shall never display a customer's password. The customer's password may be reset but never be shown instead an OTP will be sent to the customer's email. The system's back-end servers shall only be accessible to authenticated administrators.

3.5.3 SUPPORTABILITY: -

The source code developed for this system shall be maintained in configurationally management tool.

3.5.4 PERFORMANCE REQUIREMENTS: -

- The product shall be based on the web and has to be run from a web server.

- The product shall take initial load time depending on internet connection strength which also depends on the media from which the product is running
- The performance shall depend upon hardware components of the client/customer.

4. CHANGE MANAGEMENT PROCESS:-

The system must allow additional features to be integrated in the system in the near future.

\

USE CASES

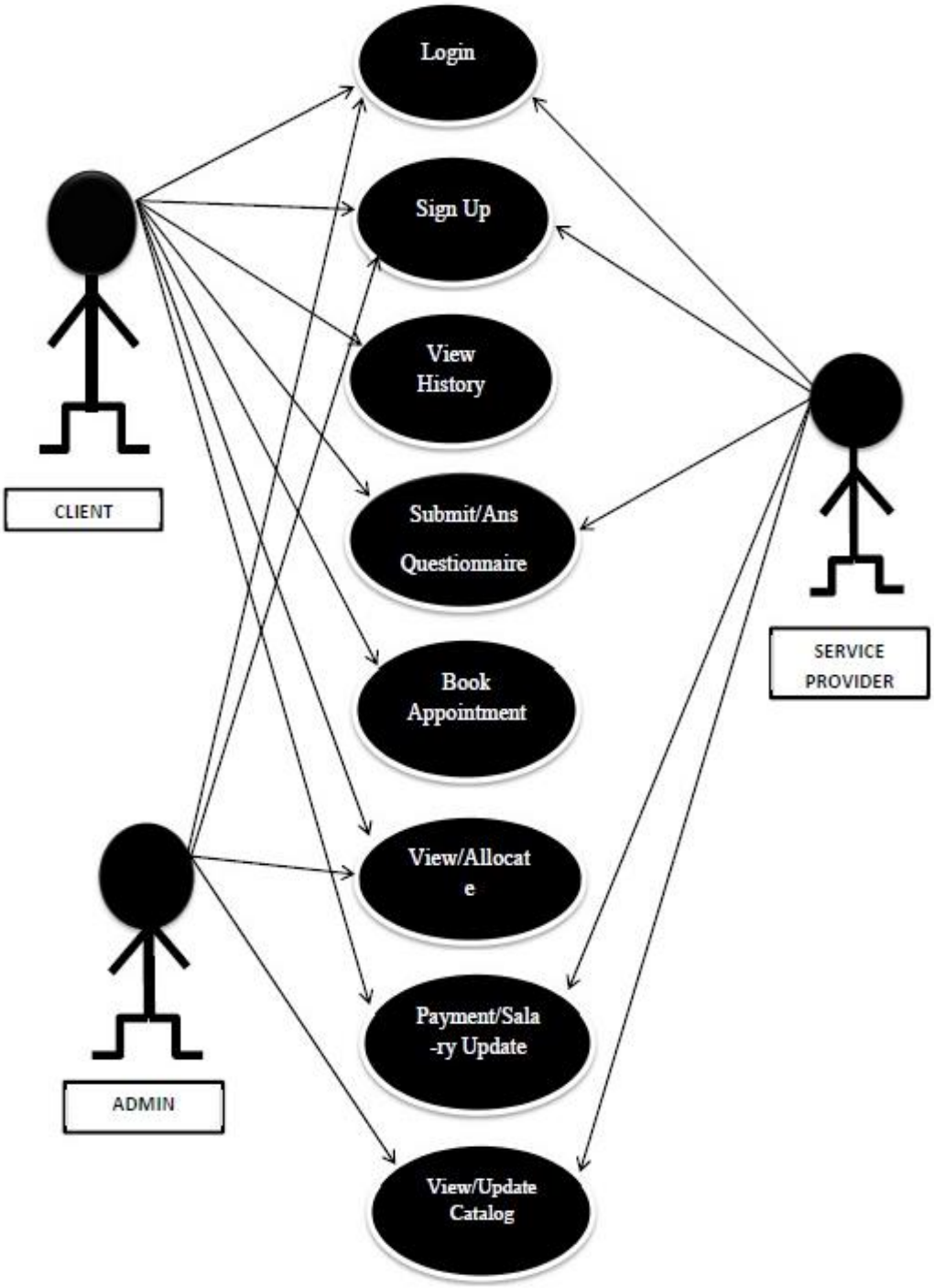
From the problem description, we can see that system has three actors

1. Client
2. Admin
3. Service Provider

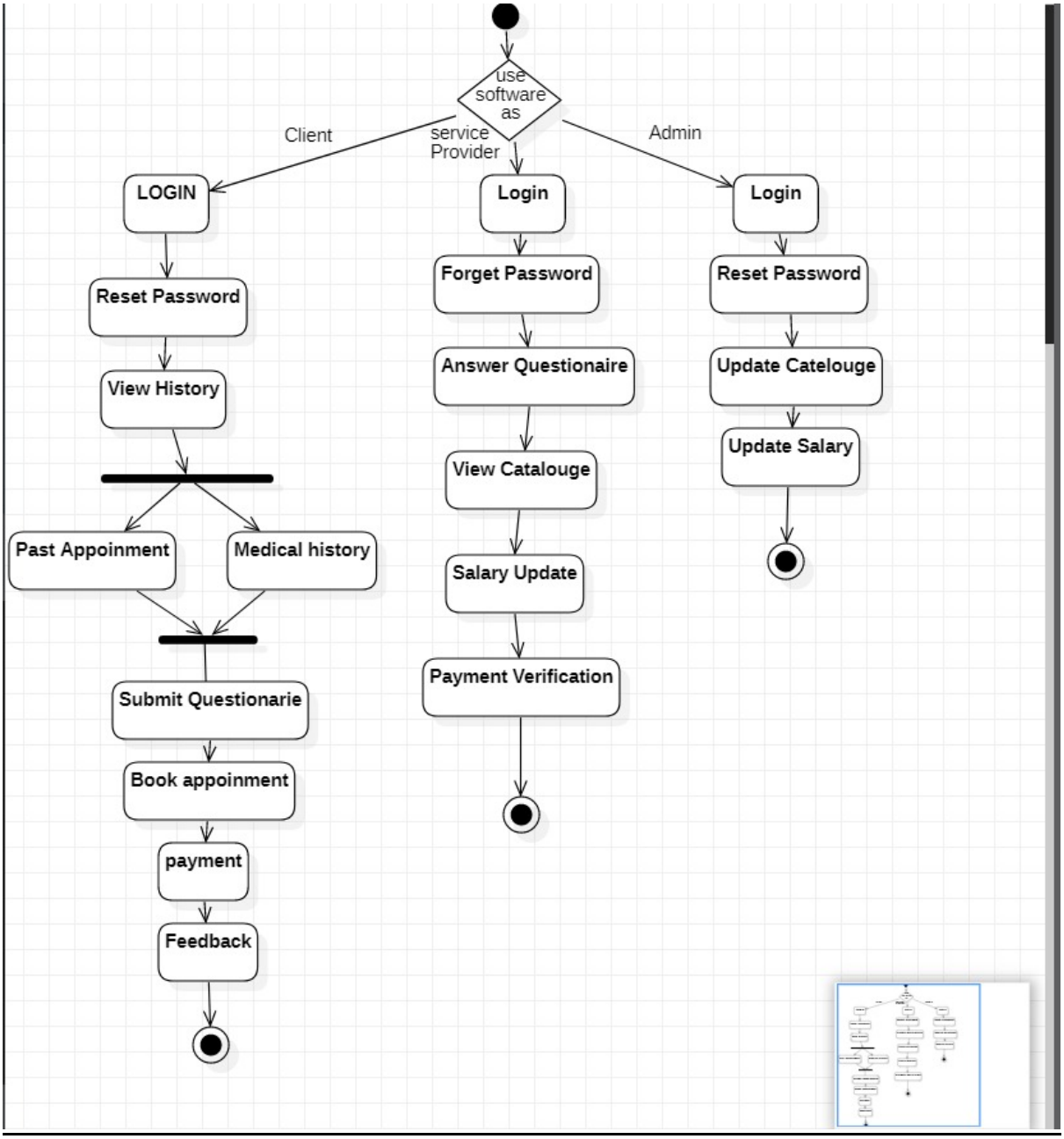
To define the system's functionalities, we can revive the system as a collection of following use cases:

1. Login
2. Sign Up
3. Generate OTP
4. Reset/Forgot Password
5. View History
6. Submit Questionnaire
7. Book Appointment
8. Request Cancellation
9. Bill Generation &Payment
10. Submit Feedback

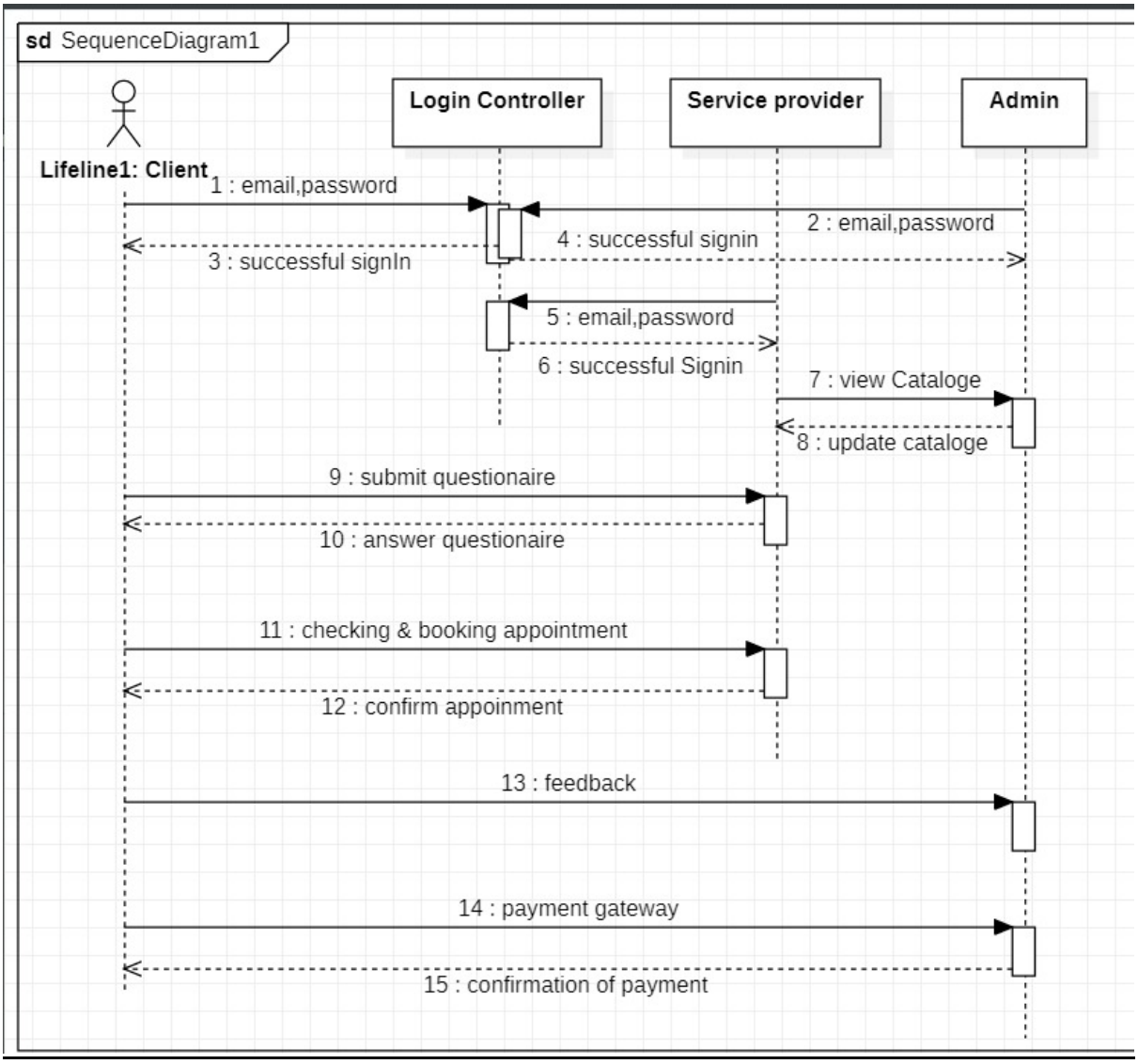
USE CASE DAIGRAM



ACTIVITY DAIGRAM



SEQUENCE DAIGRAM



SOFTWARE TESTING

Question : Consider a simple program to classify a triangle. Its inputs is a triple of positive integers (say a, b, c) and the date type for input parameters ensures that these will be integers greater than 0 and less than or equal to 100. The program output may be one of the following words:

[Scalene; Isosceles; Equilateral]

Code :

```
#include <iostream>
using namespace std;
int main()
{
   int a, b, c;
   cout<<"Enter the value of a \n";
   cin >> a;
   cout<<"Enter the value of b \n";
   cin >> b;
   cout<<"Enter the value of c \n";
   cin >> c;
   if(a<100 && b<100 && c<100 && a>0 && b>0 && c>0) {
      if(a==b && a==c){
      cout << "The triangle is equilateral \n";

      }
      else if(a!=b && b!=c && a!=c){
         cout << "The triangle is scalene \n";

      }
      else{
         cout << "The triangle is isosceles \n";
      }
   }
   else{
```

```
        cout << "Invalid input \n";
        return 0;
    }

    return 0;
}
```

- **Boundary value analysis :**

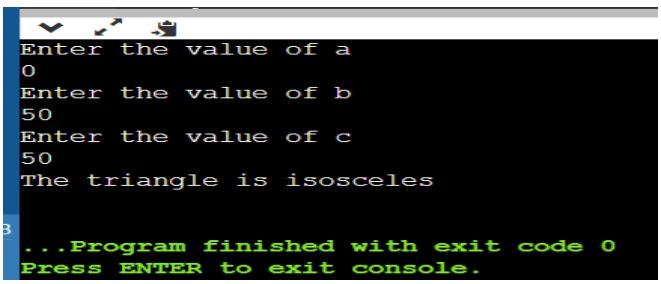
  Total no of test case : 4n+1

  n = 3

  no of test cases : 13

S.No	a	b	c	Actual output
1	0	50	50	Isosceles
2	1	50	50	Isosceles
3	50	50	50	Equilateral
4	99	50	50	Isosceles
5	100	50	50	Isosceles
6	50	0	50	Isosceles
7	50	1	50	Isosceles
8	50	99	50	Isosceles
9	50	100	50	Isosceles
10	50	50	0	Isosceles
11	50	50	1	Isosceles
12	50	50	99	Isosceles
13	50	50	100	Isosceles

Output of the code:



```
Enter the value of a
1
Enter the value of b
50
Enter the value of c
50
The triangle is isosceles


...Program finished with exit code 0
Press ENTER to exit console.
```

```
Enter the value of a
50
Enter the value of b
50
Enter the value of c
50
The triangle is equilateral


...Program finished with exit code 0
Press ENTER to exit console.
```

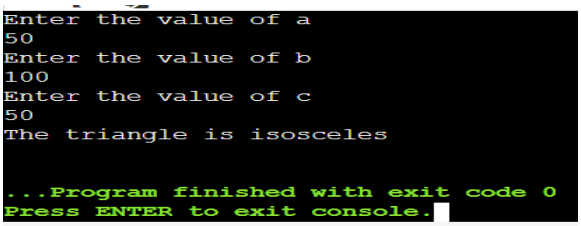
```
Enter the value of a
99
Enter the value of b
50
Enter the value of c
50
The triangle is isosceles


...Program finished with exit code 0
Press ENTER to exit console.
```

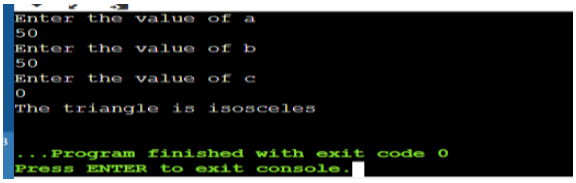
```
Enter the value of a
100
Enter the value of b
50
Enter the value of c
50
The triangle is isosceles


...Program finished with exit code 0
Press ENTER to exit console.
```

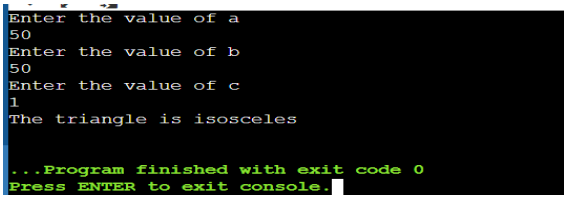
```
Enter the value of a
50
Enter the value of b
0
Enter the value of c
50
The triangle is isosceles


...Program finished with exit code 0
Press ENTER to exit console.
```

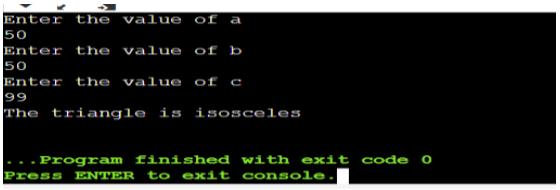
```
Enter the value of a
50
Enter the value of b
1
Enter the value of c
50
The triangle is isosceles


...Program finished with exit code 0
Press ENTER to exit console.
```

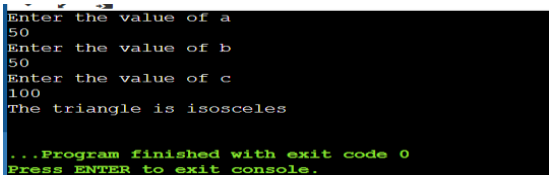
```
Enter the value of a
50
Enter the value of b
99
Enter the value of c
50
The triangle is isosceles


...Program finished with exit code 0
Press ENTER to exit console.
```











- **Equivalence class testing technique :**

  Ques : Consider a simple program to classify a triangle. Its inputs is a triple of positive integers (say a, b, c) and the date type for input parameters ensures that these will be integers greater than 0 and less than or equal to 100. The program output may be one of the following words:

  [Scalene; Isosceles; Equilateral]

  equivalence class test cases:

  O1: {0>a>100: Invalid Input}

  O2: {0>b>100: Invalid Input}

  O3: {0>c>100: Invalid Input}

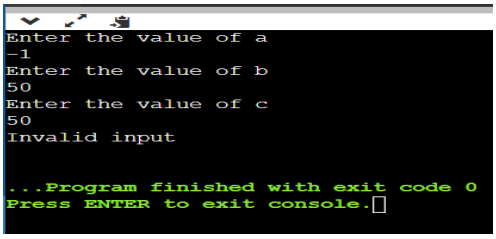
  O4: {0<a<100: Valid Input}

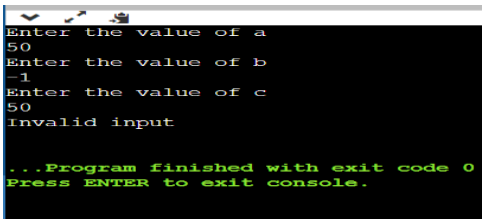
O5: {0<b<100: Valid Input}

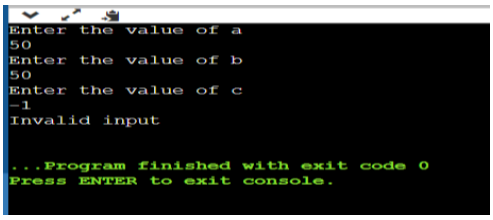
O6: {0<c<100: Valid Input}

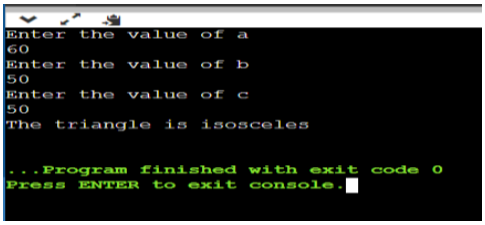
SNo	a	b	c	Actual output
1	-1	50	50	Invalid input
2	50	-1	50	Invalid input
3	50	50	-1	Invalid input
4	60	50	50	Isosceles
5	50	60	50	Isosceles
6	50	50	60	Isosceles

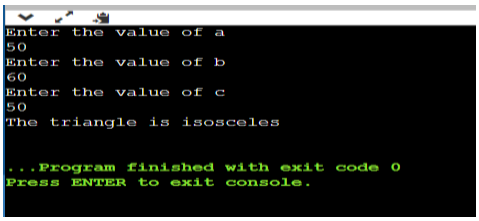
Output of the code:

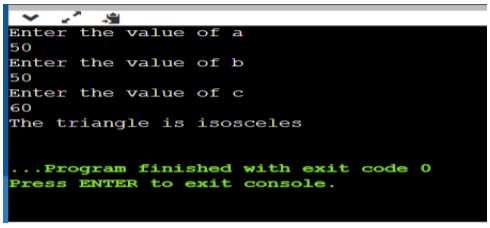




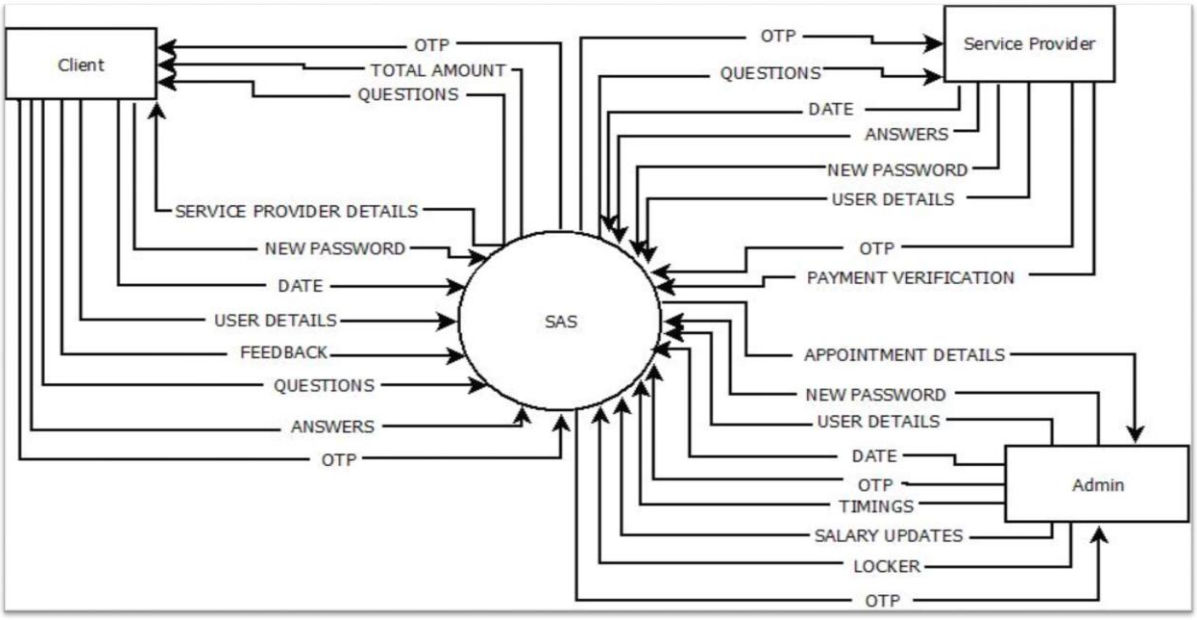




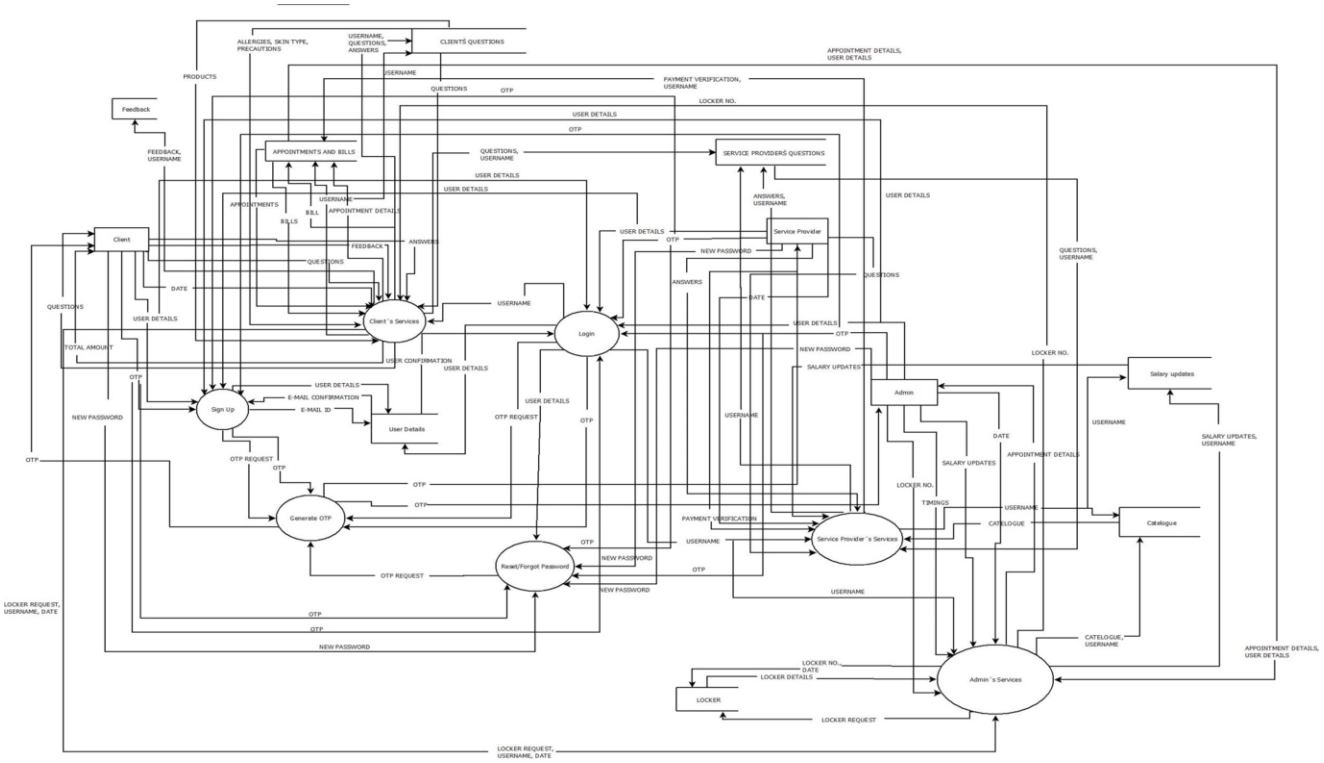

Enter the value of a
50
Enter the value of b
60
Enter the value of c
50
The triangle is isosceles
...Program finished with exit code 0
Press ENTER to exit console.


Enter the value of a
50
Enter the value of b
50
Enter the value of c
60
The triangle is isosceles
...Program finished with exit code 0
Press ENTER to exit console.

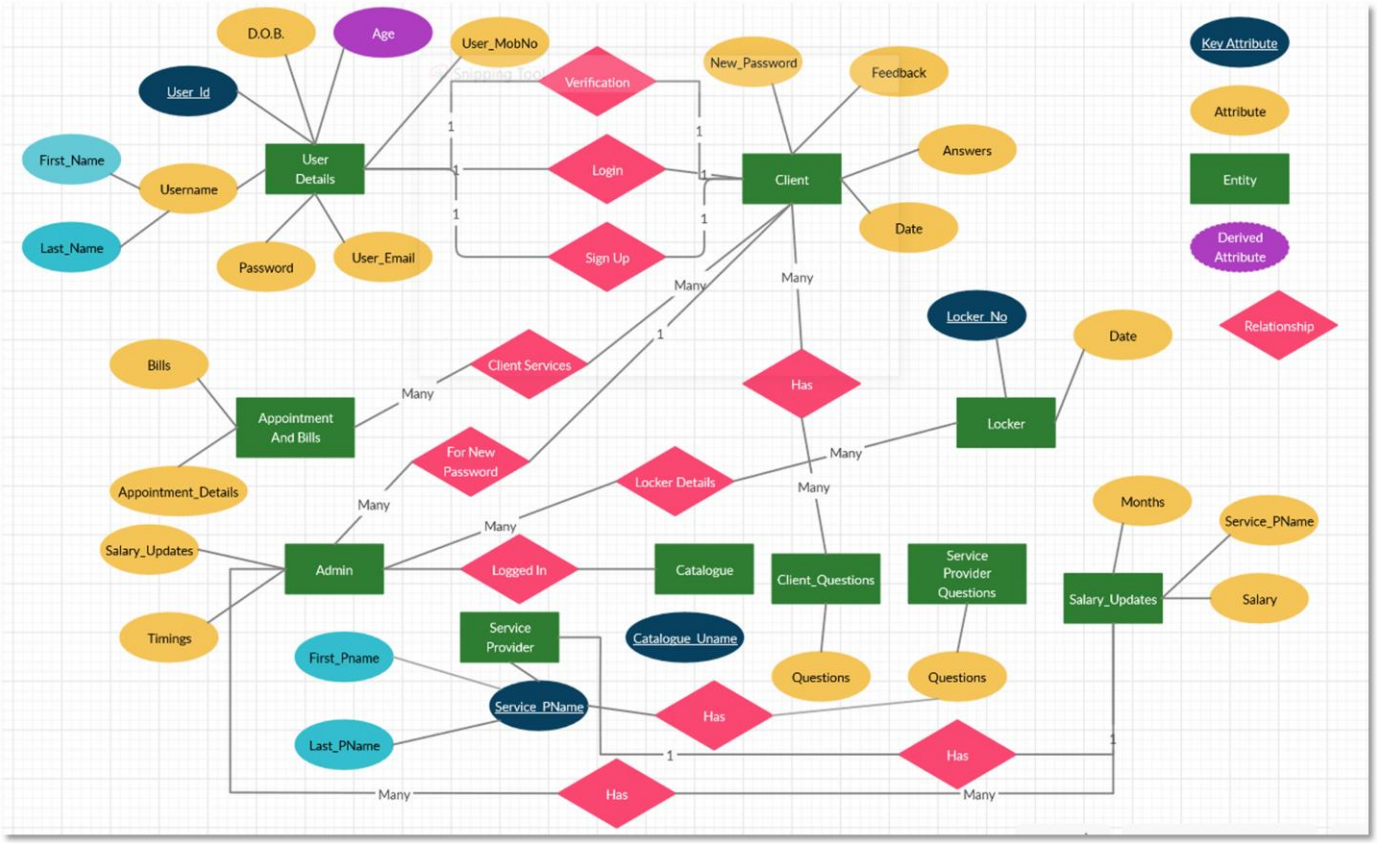
LEVEL-0 DFD



LEVEL-1 DFD

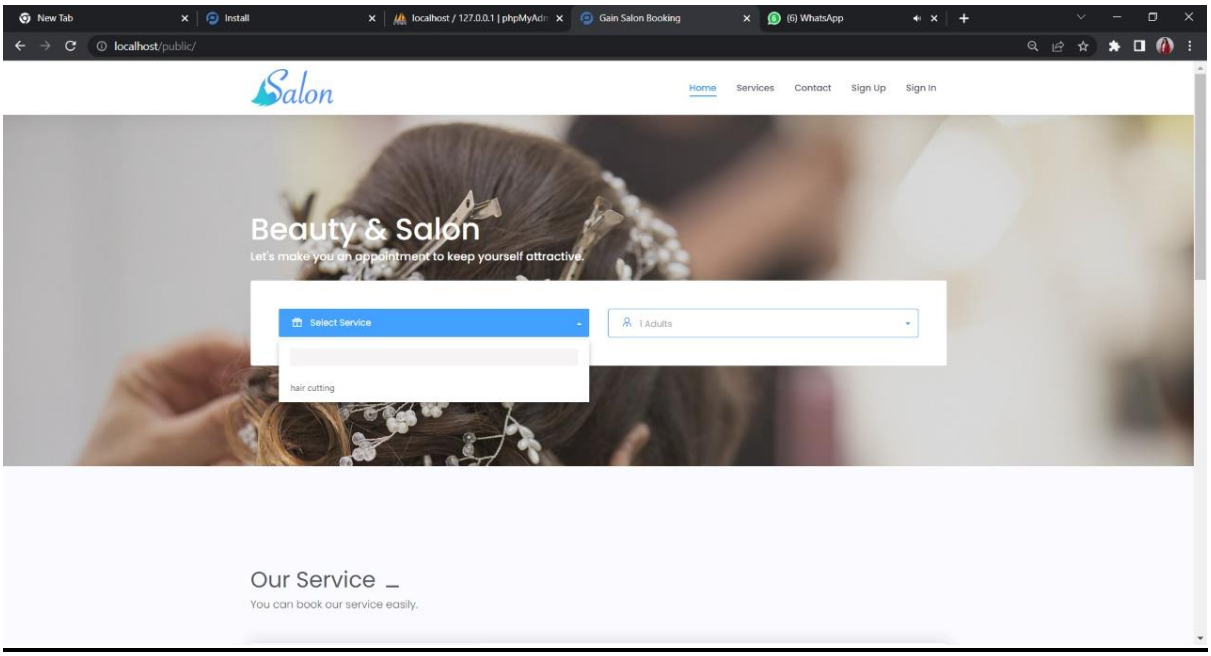


ER DAIGRAM

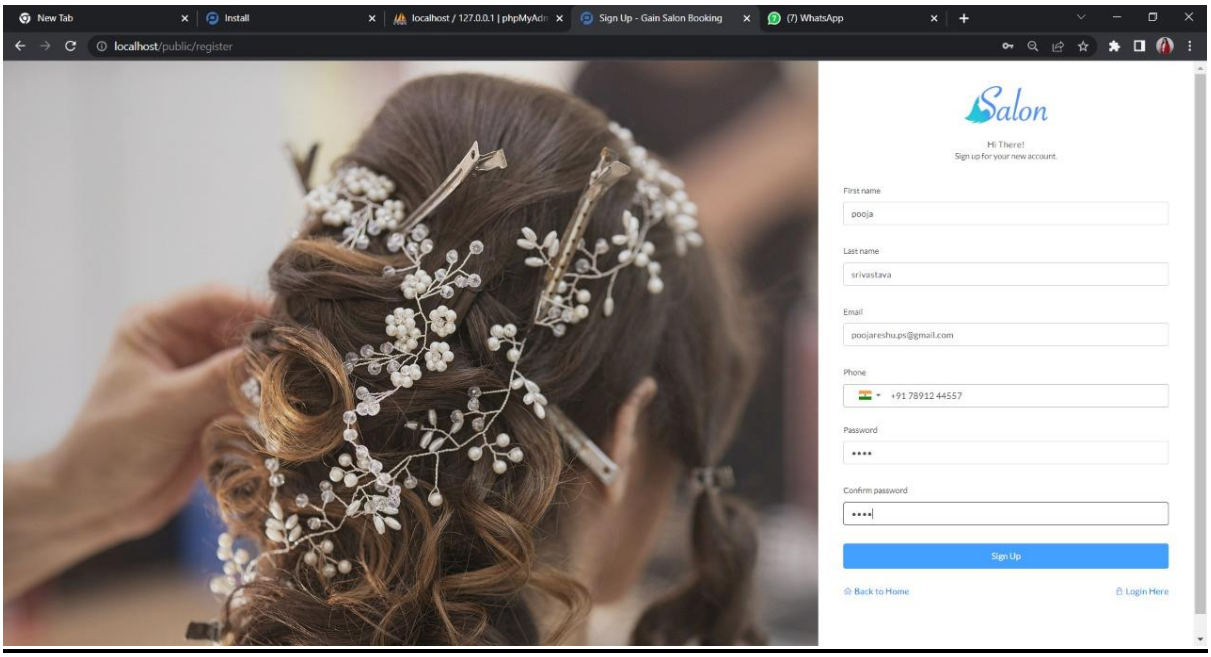

D.O.B.
Age
User_MobNo
User_Id
Verification
New_Password
Feedback
Key Attribute
Attribute
Entity
Derived Attribute
First_Name
Username
Last_Name
User Details
Login
Client
Answers
Date
Password
User_Email
Sign Up
Relationship
Locker_No
Date
Bills
Client Services
Has
Appointment And Bills
Locker
Appointment_Details
For New Password
Locker Details
Months
Service_PName
Salary_Updates
Admin
Logged In
Catalogue
Client_Questions
Service Provider Questions
Salary_Updates
Salary
Timings
Service Provider
Catalogue_Uname
First_Pname
Questions
Questions
Service_PName
Has
Last_PName
Has
Has
1
Many

WEBSITE

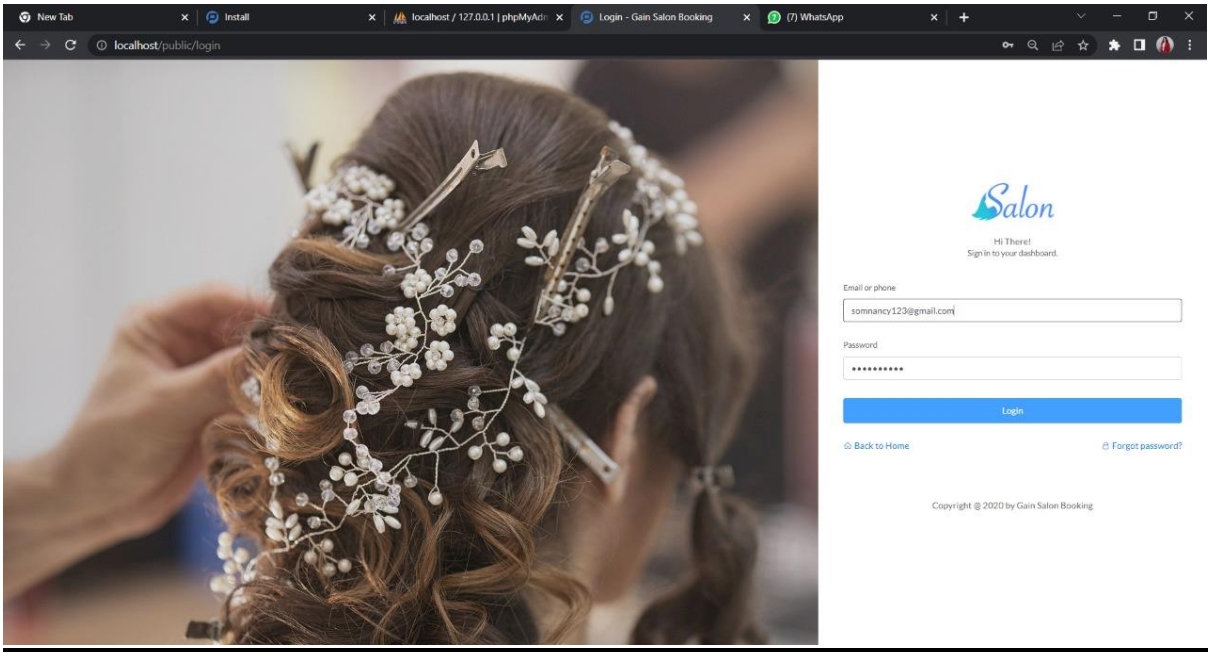
Home page



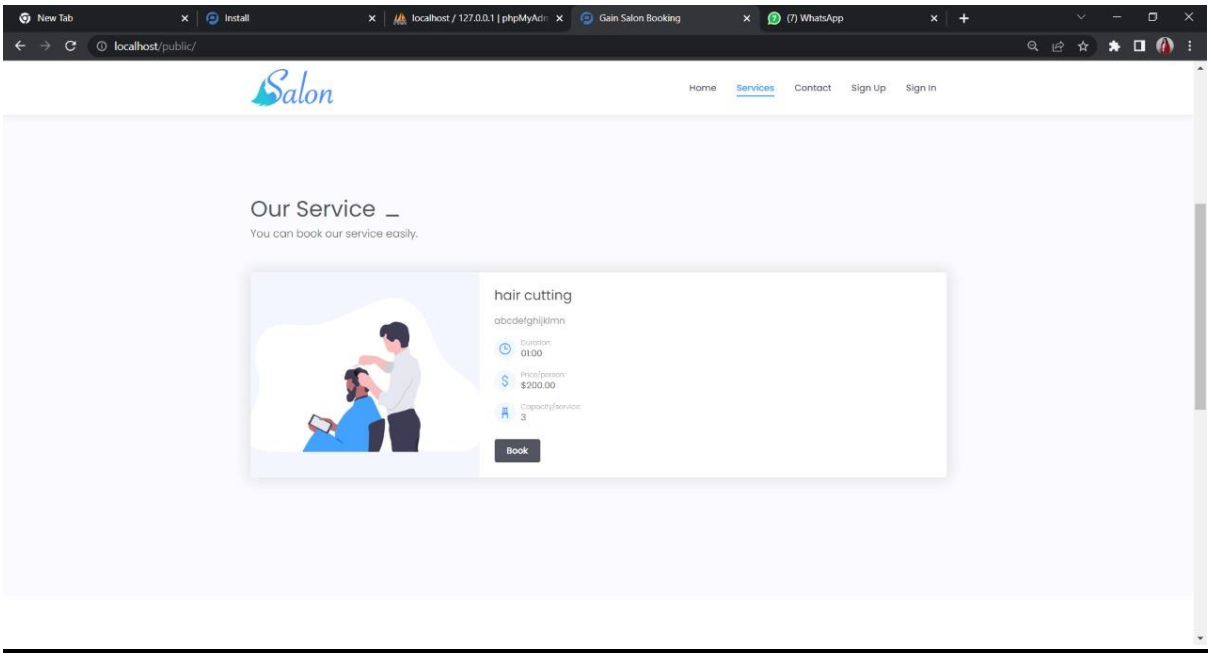
Sign Up



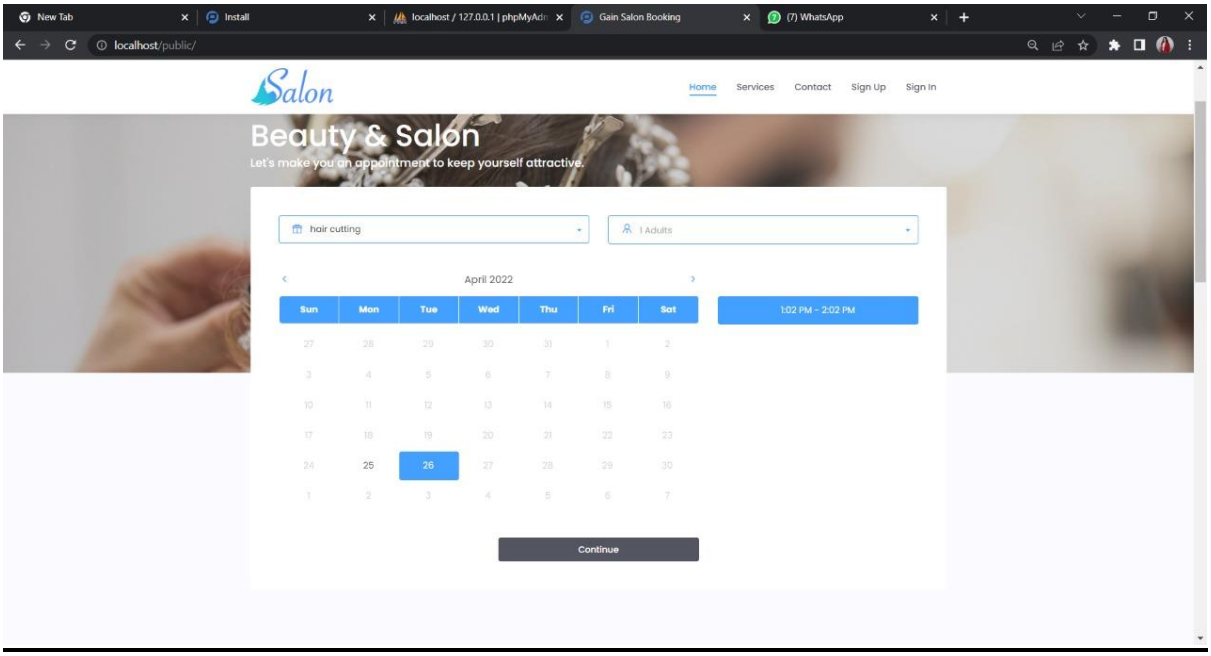
Login

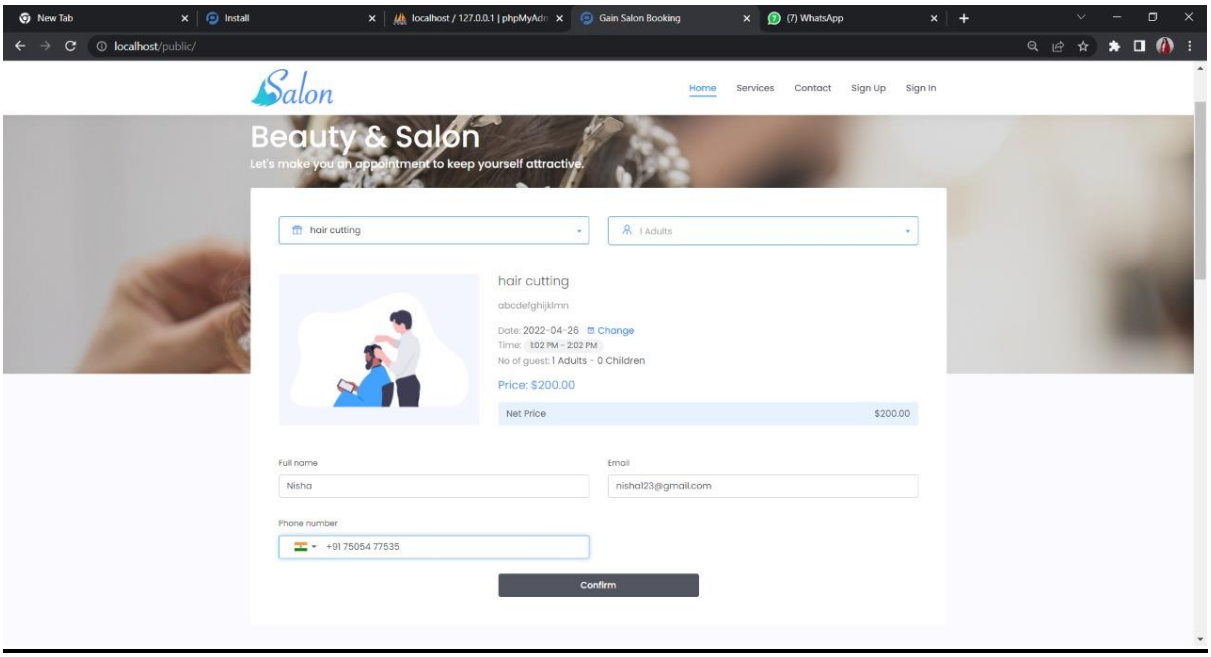


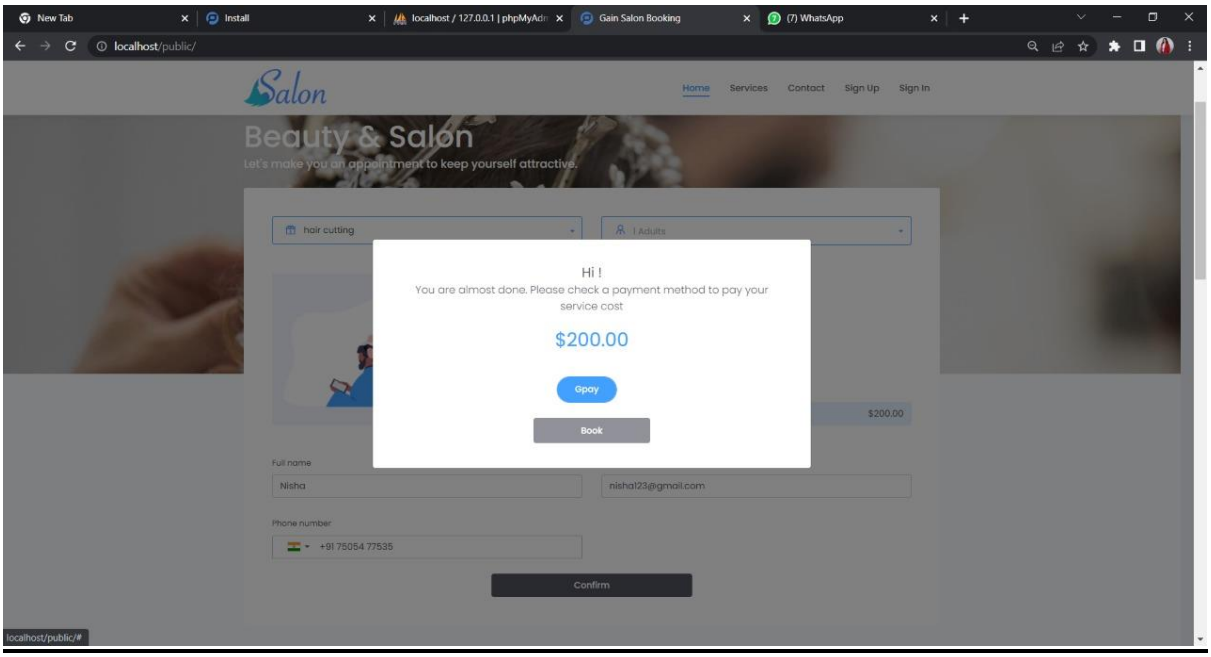
Services

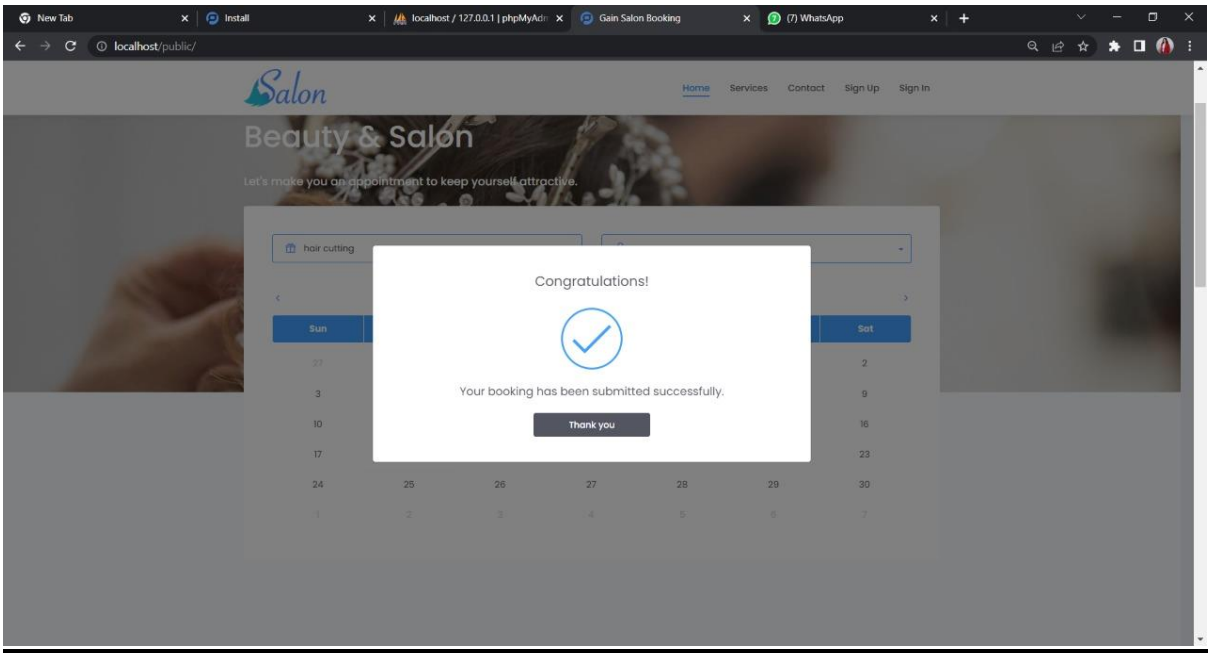


Booking

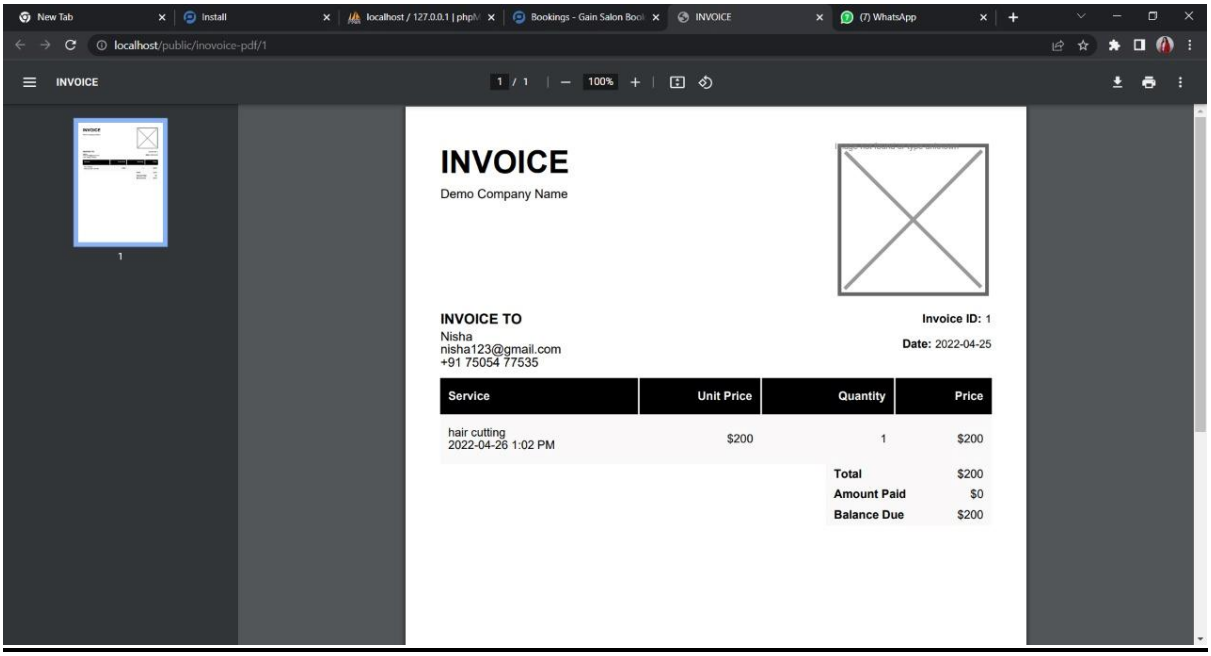

New Tab
Install
localhost / 127.0.0.1 | phpMyAdmin
Gain Salon Booking
(7) WhatsApp
localhost/public/
Salon
Home
Services
Contact
Sign Up
Sign In
Beauty & Salon
Let's make you an appointment to keep yourself attractive.
hair cutting
1 Adults
April 2022
Sun
Mon
Tue
Wed
Thu
Fri
Sat
1:02 PM - 2:02 PM
Continue


New Tab
Install
localhost / 127.0.0.1 | phpMyAdmin
Gain Salon Booking
(7) WhatsApp
localhost/public/
Salon
Home
Services
Contact
Sign Up
Sign In
Beauty & Salon
Let's make you an appointment to keep yourself attractive.
hair cutting
1 Adults
hair cutting
abcdefghijklmn
Date: 2022-04-26 Change
Time: 1:02 PM - 2:02 PM
No of guest: 1 Adults - 0 Children
Price: $200.00
Net Price
$200.00
Full name
Nisha
Email
nisha123@gmail.com
Phone number
+91 75054 77535
Confirm

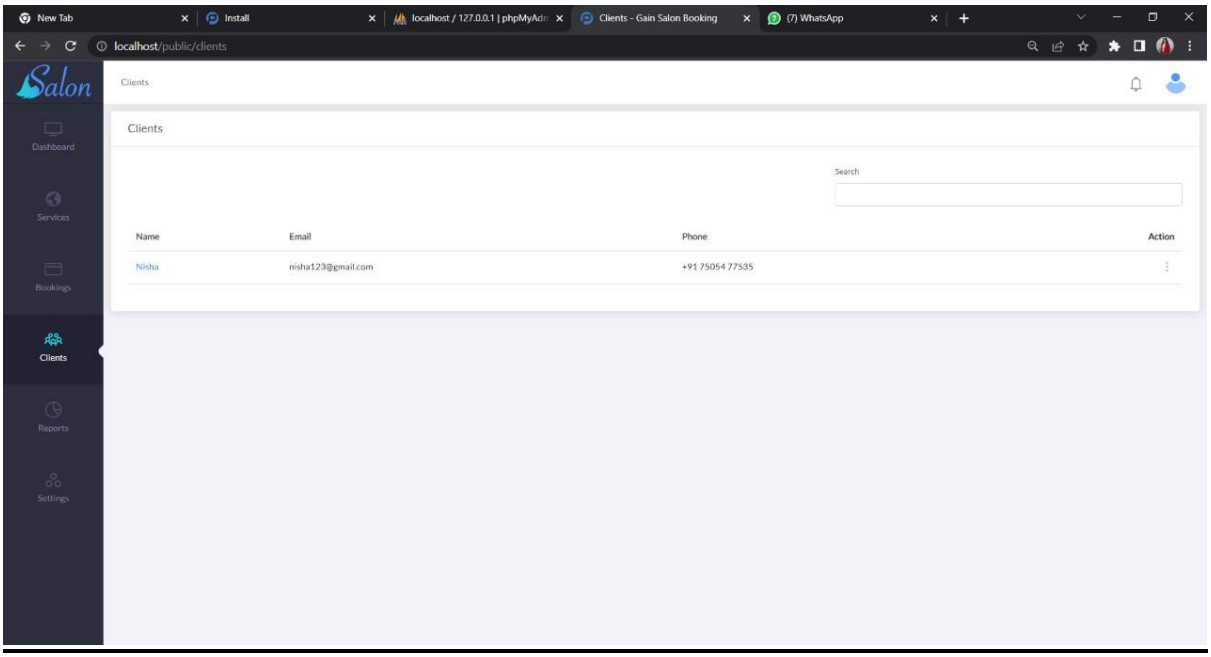

New Tab
Install
localhost / 127.0.0.1 | phpMyAdmin
Gain Salon Booking
(7) WhatsApp
localhost/public/
Salon
Home
Services
Contact
Sign Up
Sign In
Beauty & Salon
Let's make you an appointment to keep yourself attractive.
hair cutting
1 Adults
Hi !
You are almost done. Please check a payment method to pay your service cost
$200.00
Gpay
Book
$200.00
Full name
Nisha
nisha123@gmail.com
Phone number
+91 75054 77535
Confirm
localhost/public/#


New Tab
Install
localhost / 127.0.0.1 | phpMyAdmin
Gain Salon Booking
(7) WhatsApp
localhost/public/
Salon
Home
Services
Contact
Sign Up
Sign In
Beauty & Salon
Let's make you an appointment to keep yourself attractive.
hair cutting
Congratulations!
Your booking has been submitted successfully.
Thank you
Sun
Sat

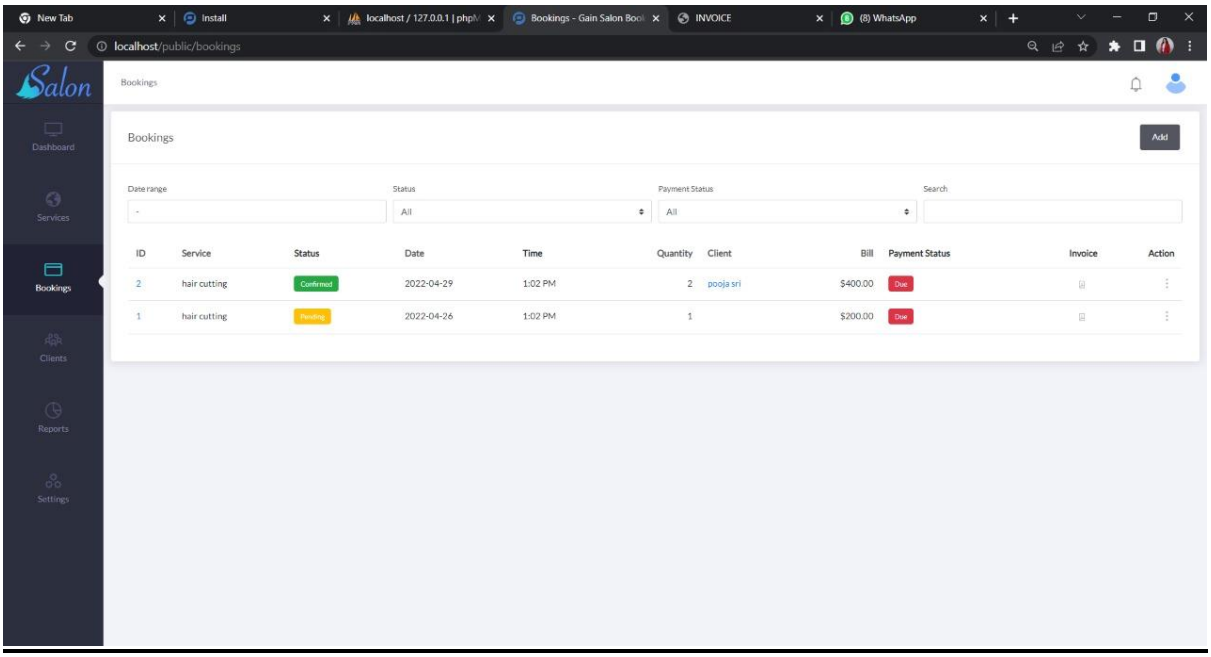
Invoice Generation



Booking Records:

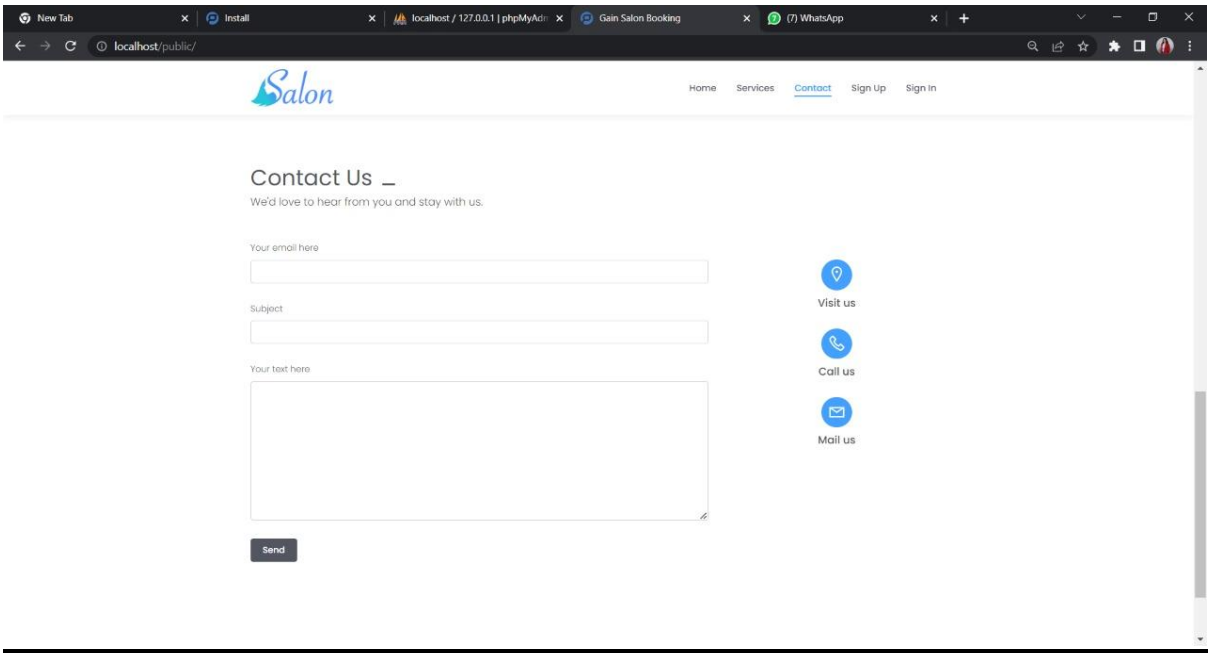


Booking Details:

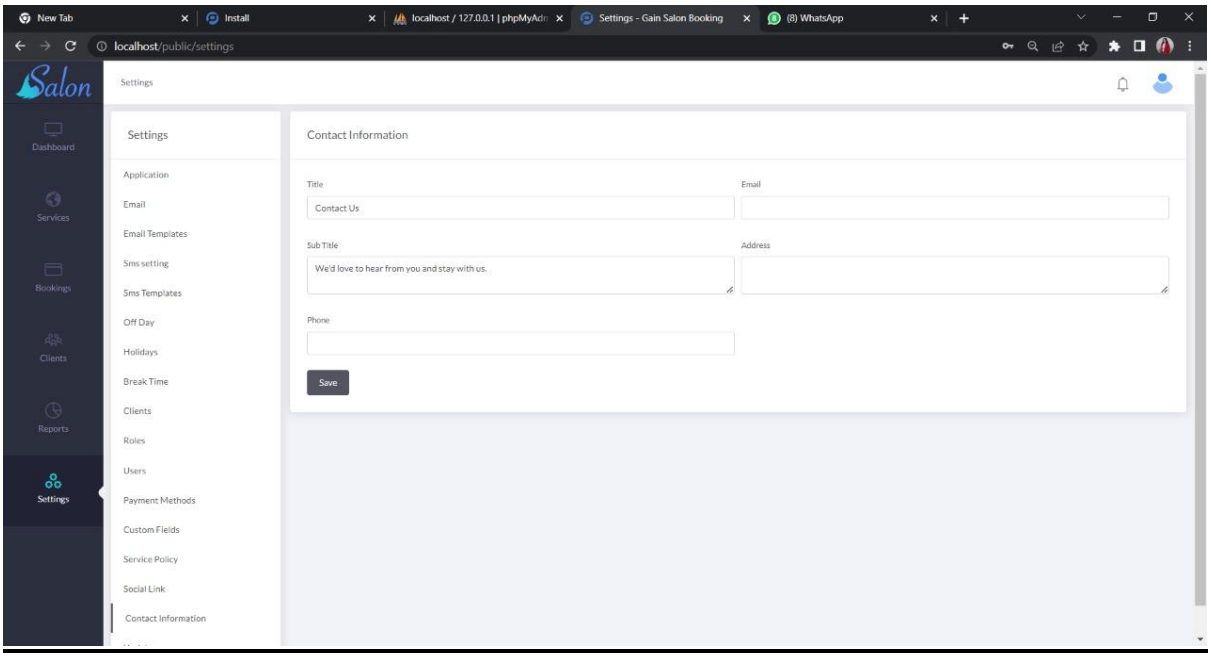


Questionaire Contact form

(Client side)



(Service Provider side)



Dashboard: