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GREEN WASH

On-Demand Car Wash

LLD

Table of Contents

1.0 Document Purpose

The documents contain a detailed description of the solution architecture of the on-demand Car Wash System.

2.0 Intended Audience

Role	Nature of Engagement in the On Demand Car Wash System Architecture
Product Owner/SME	Key stakeholder to ensure that the architecture is aligned with business goals.
Business Analysts	Business analysts are one of the stakeholders who are informed with the key architectural decisions.
Enterprise Architects	To enforce Customer management Platform Architecture is aligned to business goals and architecture, architectural guidelines.
Developers	Use Technical Architecture Document as the guiding document for detail design and implantation approach to align with Customer management Microservice
End-User	An End- user can check the bookings done, cost for the booking and other package information and book/cancel a Wash.

3.0 Project Background & Objectives

3.1 Project Background

On Demand Car Wash System leads to perform Management of Car wash details where one can register themselves and perform various operations related to washing Cars.

3.2 Project Objectives

On Demand Car Wash System will perform various operations like instantly booking the car wash service or scheduling it for later.

The user of this system should first register with his/her email ID and their password for any interaction with the system. Once registered and after logging in the user should select the kind of activity, he would like to perform.

3.3Technologies Used

- Frontend:- Angular
- Backend:- Web-API (ASP.NET CORE WEB API) ASP.NET MVC and SWAGGER
- Database:- SQL SERVER MANAGEMENT STUDIO(SSMS)

4.0 Design Pattern

Serial no.	Name	Description
1	Angular	Creating a user interface (Front-end), and consuming API services.
2	Database	For storing, maintaining and accessing customer, admin, car washer and booking details.
3	API	Using HTTP requests, we will use the respective action to trigger various operations

5.0 Solution Steps

5.1 Customer

Registering Customer

1. User will be able to register himself by entering the details like Name, address, Phone, email, and Password.

2. After filling the user credentials the form is validated.
3. If the validation is successful, by clicking the submit button browser directs the request to customer registration API.
4. The call reaches the API gateway.
5. API gateway does the routing and saves the data in the database.
6. Once a user is successfully registered an alert is displayed and the user is redirected to the login page.

Viewing Wash package and Payment Details

1. After login, users can book their first car wash within few taps.
2. They can even add a new car and include some extra wash add-ons if they wish to.
3. users can schedule car wash for upcoming dates by selecting their preferred date, time, location, and package.
4. A user can confirm the booking and pay washers through their debit/credit cards.
5. User gets a payment receipt from washer after the successful car wash.
6. After the successful car wash, users can share their thoughts and opinions for washers through reviews and ratings.
7. Users can view and edit their profile information and can view order details like Current orders and Past orders.

5.2 Car Washer

1. Washer can login using – Email
2. Wash Request is sent to the washer along with the user details. The washer can either accept or decline the request.
3. On accepting the request, a washer can navigate through customer's address by Google Maps Integration.
4. Washers can view and update their profile information like profile picture and contact information.
5. Washers will be notified in the below scenario: -

a. Scheduled wash notification before 2 hours.

b. New wash order.

c. When users cancel wash request.

d. On successful Payment by users.

6. Washer and can view order details like Current orders and Past orders.

5.3 Admin

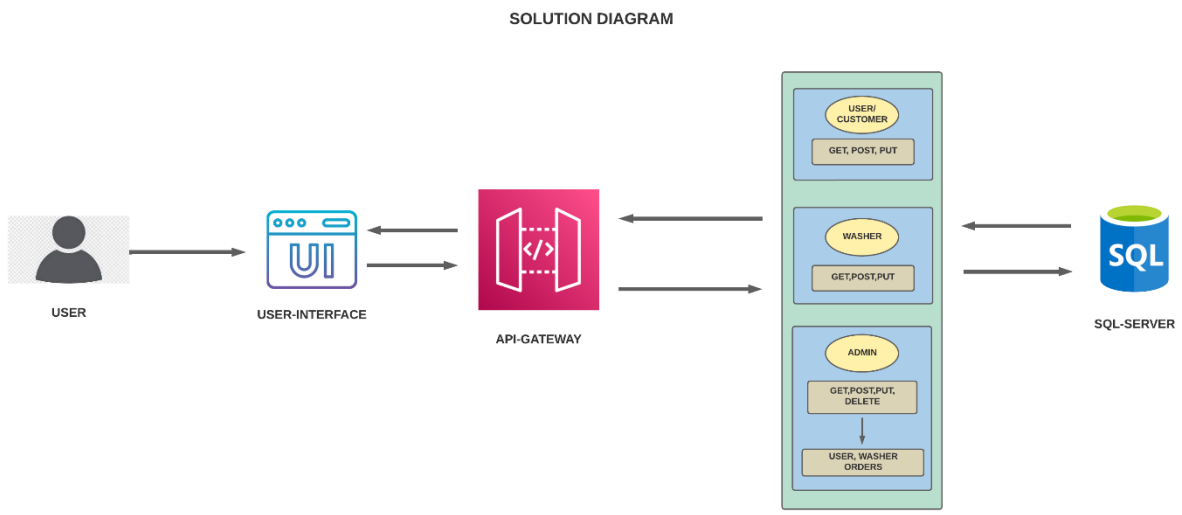
1. Admin will be able to edit and add new car washer, add news car details, and payment details.
2. Admin has access to all users and car washer's details.
3. Admin can Add/Edit service plan details and Active/Inactive it.
4. Admin can Add/Edit Add-On list, Promo codes and can inactive also.
5. Admin can view pending, accepted, under process, completed and cancelled orders.
6. GetAllCars() will let the admin view all the car details.
7. GetCustomerById() will allow Admin to view customer details by ID.

6.0 Classes/Functions

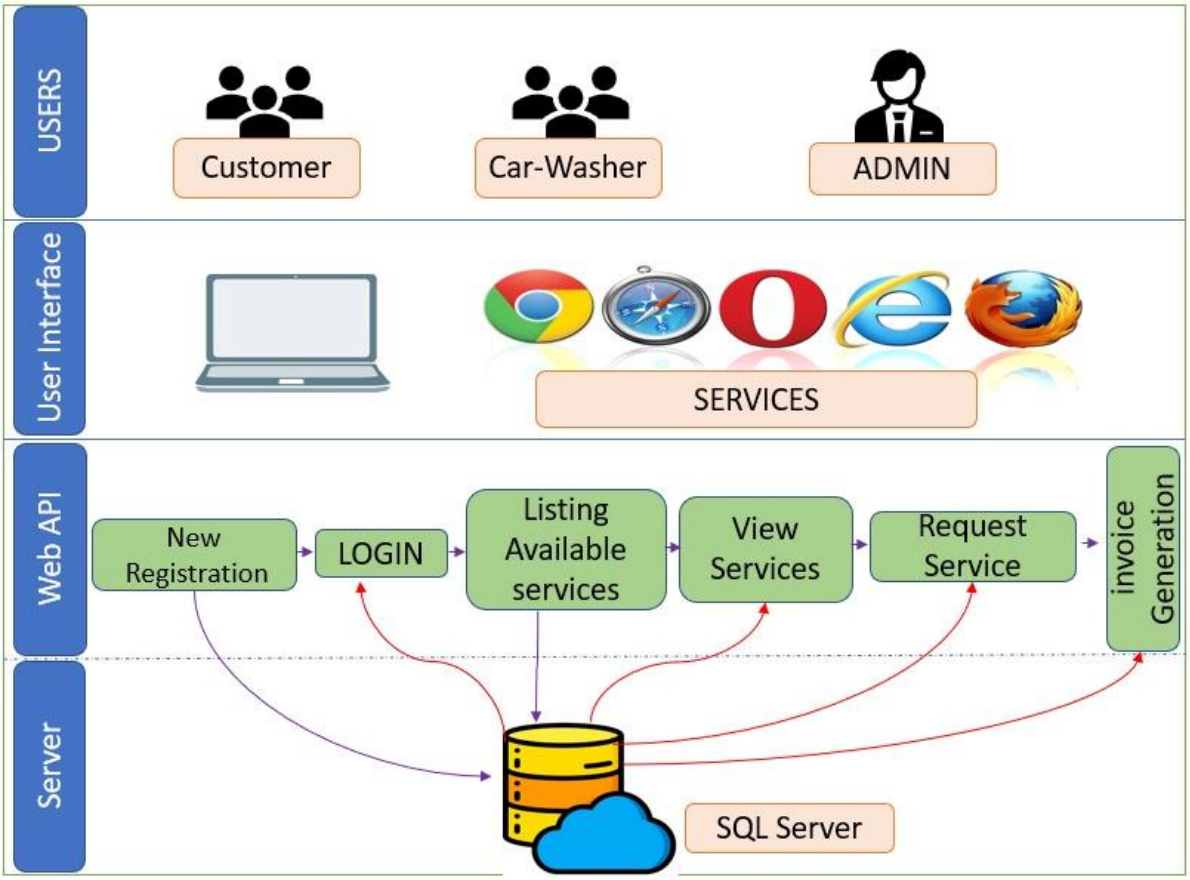
Serial no.	Class	Description
1	Model Class	Model for holding the booking schema details for user.
2	Repository	The Interface in Data Access Layer for the user.
3	Controller	Controller handles the incoming HTTP requests and send the response back to the caller.

4	Services	It's the Business Access Layer holding the Business Logic and meditates the communication between the controller and repository (Data Access) Layer.
5	Exception Handlers	Exception Handlers handles all the exceptions that which are revealed during runtime.

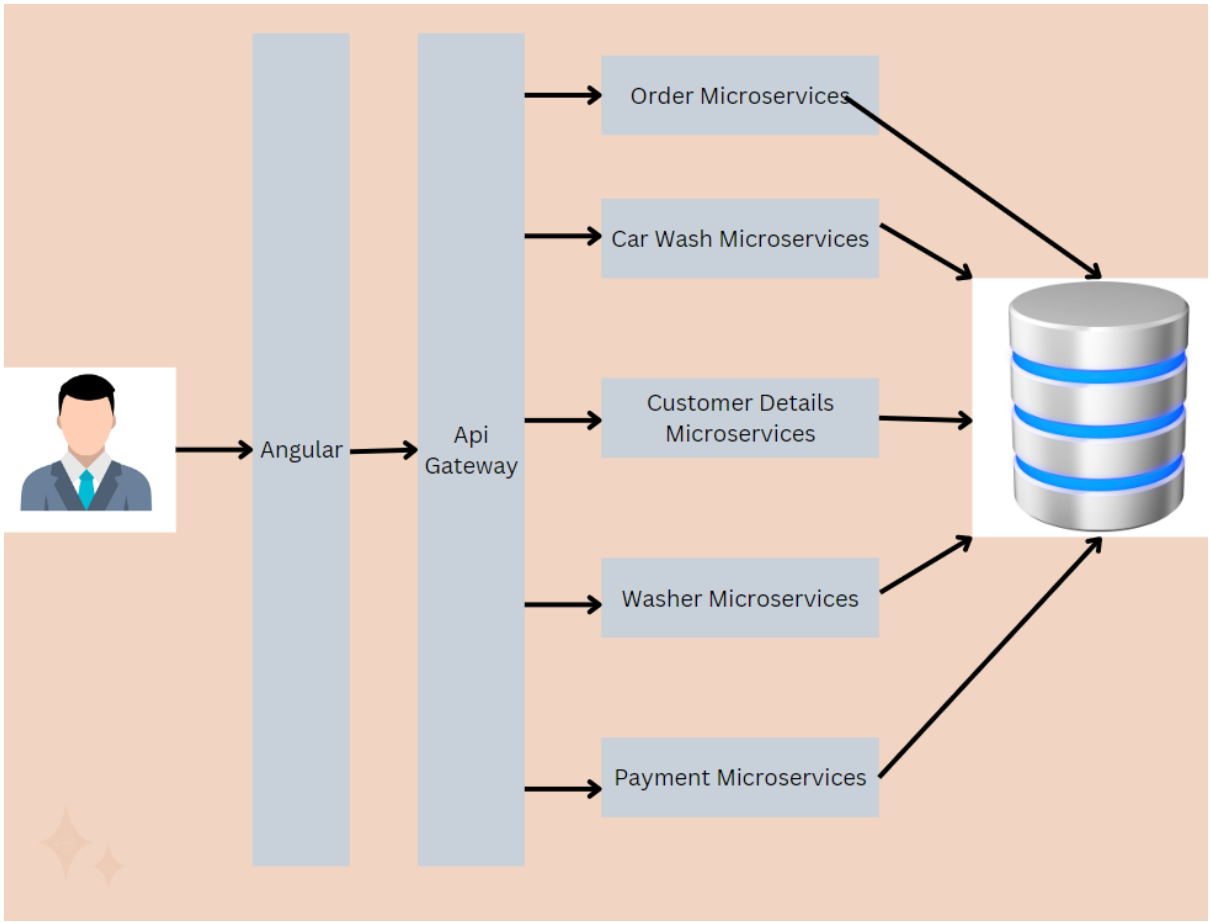
7.0 Solution Diagram



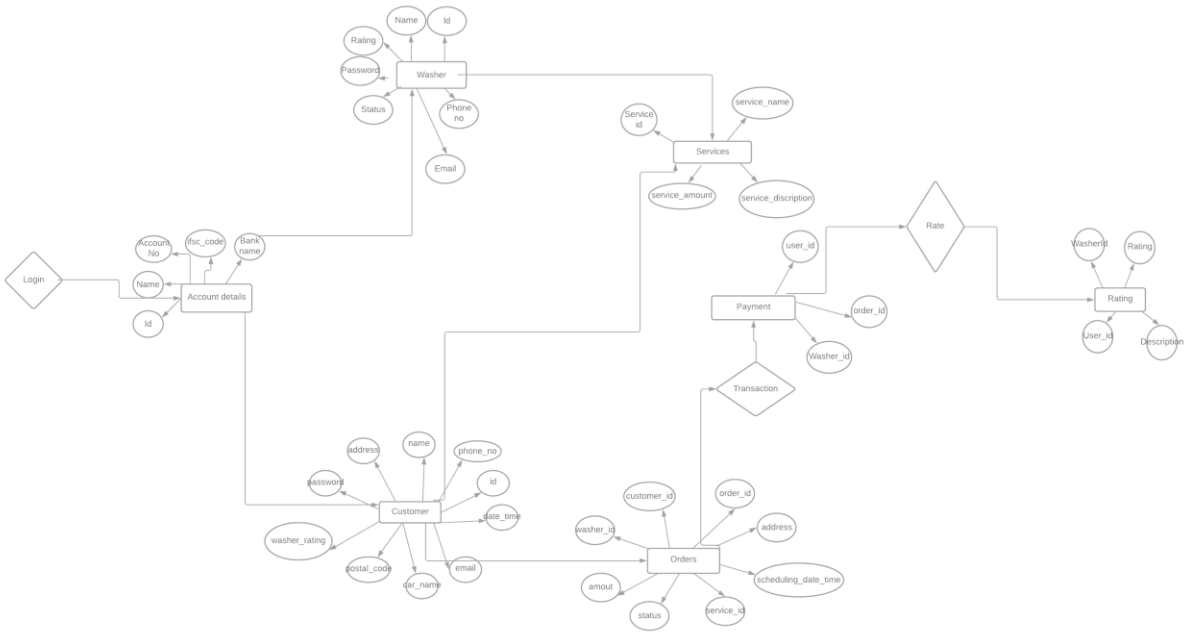
8.0 Architecture Diagram



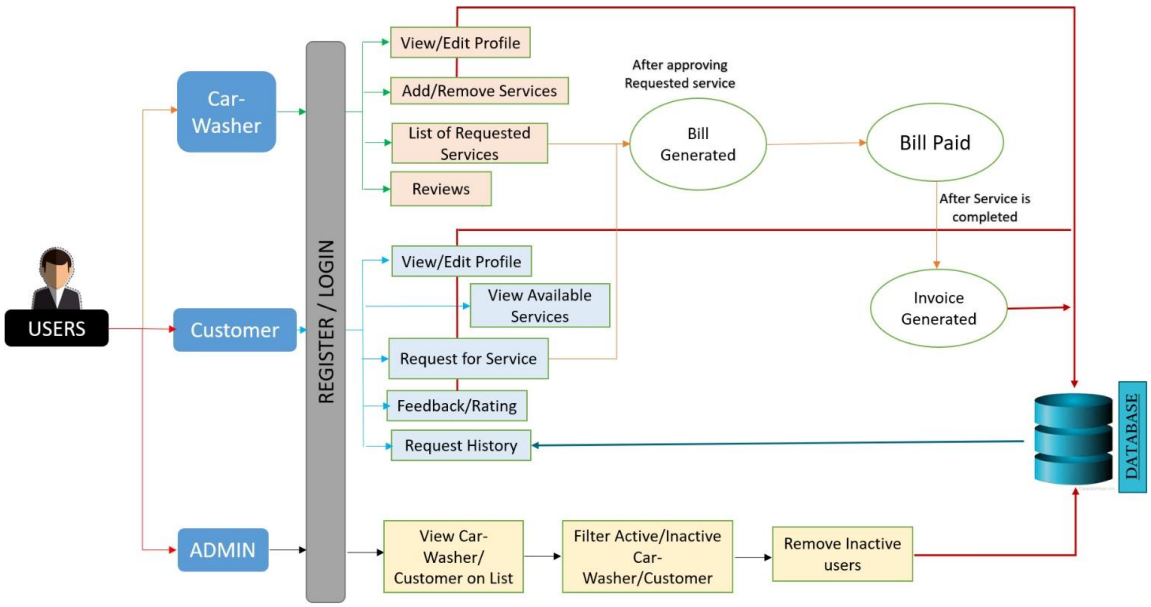
9.0 Microservices Architecture



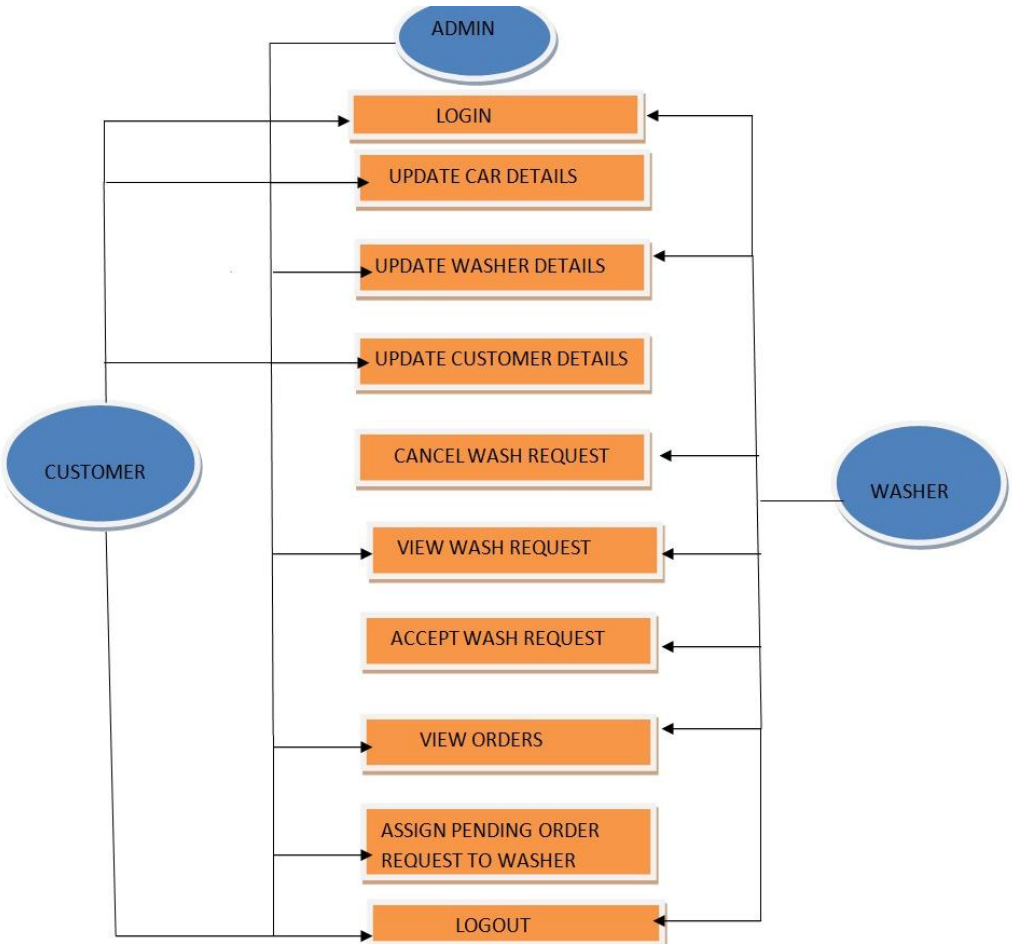
10.0 Er Diagram



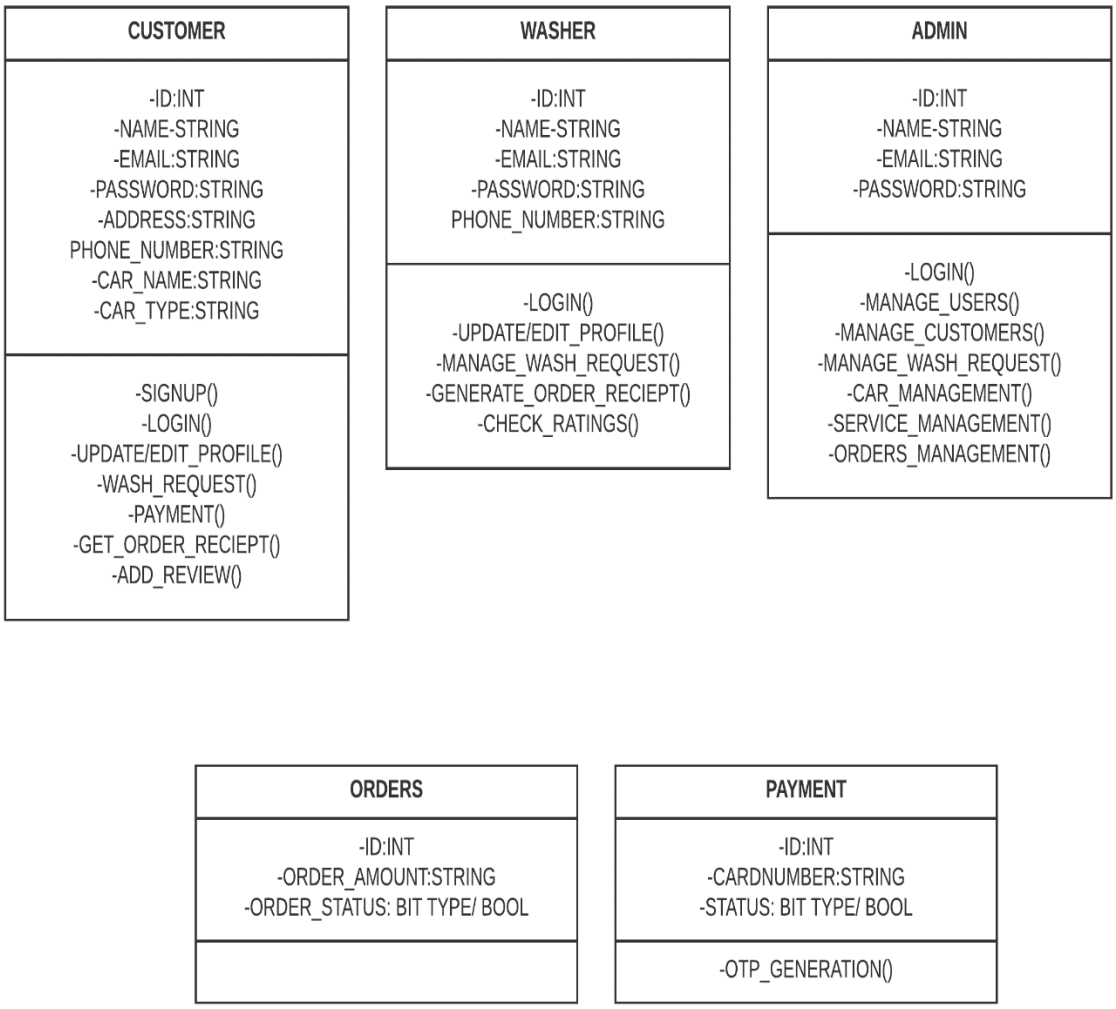
11.0 Data Flow Diagram



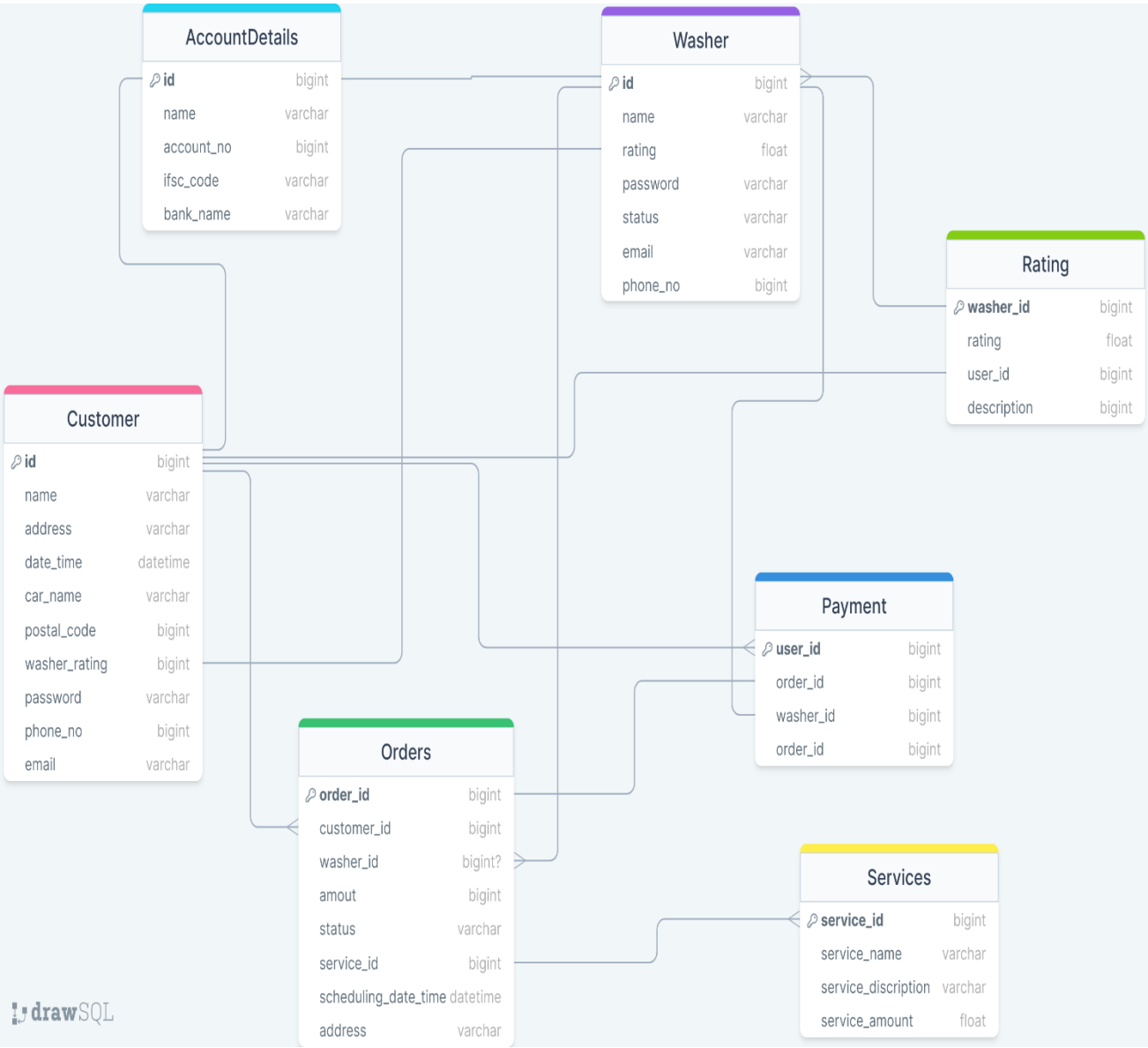
12.0 Use Case Diagram



13.0 Class Diagram



14.0 Database Diagram



15.0 Unit Test Cases

For Customer Registration

Test CASE ID	TEST CASE SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULT	ACTUAL RESULTS
1	customer registration	enter all the required fields to get registered	that id needs to be present in database	1) Enter name=john email=abc@gmail.com phone=1234567891 address=delhi 2) Enter Submit	Valid Details	Customer Registration Successfully	customer Registration Successfully
2	customer registration	enter all the required fields to get registered	That id needs to be present in database	2) Enter name= john email=abcmail.com phone=1234567891 address= delhi 2) Enter Submit	InValid email	In email there should be @	In email there should be @
3	customer registration	enter all the required fields to get registered	customer must enter all the required field as per specified in schema	3) Enter name= john email=abc@gmail.com phone=1234567891 address=delhi 2) Enter Submit	<All the Require d fields are available>	successful registration	successful registration

For Customer Listing

Test CASE ID	TEST CASE SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULT	ACTUAL RESULTS
1	Customer List	Enter the valid Customer Id of customer in parameter to get details	That id needs to be present in database	1) Enters Valid Id 2) Enter Submit	Valid Id	Customer Details	Customer Details
2	Customer List	enters the wrong Customer Id which is not there in database to get customer details	That id needs to be present in database	1) Enters invalid Id 2) Enter Submit	Invalid Id	Customer Details with this id is not present	Customer Details with this id is not present

For Customer Updation

Test CASE ID	TEST CASE SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULT	ACTUAL RESULTS
1	Customer Updation	enter the valid id of customer in parameter to get details	that id needs to be present in database	1) Enters Valid Id 2) Enter Submit	Valid Id	customer Update Successfully	customer Update Successfully
2	Customer Updation	Enter the wrong id which is not there in database to get customer details	That id needs to be present in database	1) Enters Valid Id 2) Enter Submit	Valid Id	customer Details with this id you want to update is not present	customer Details with this id you want to update is not present

For Customer Deletion

Test CASE ID	TEST CASE SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULT	ACTUAL RESULTS
1	Customer Deletion	enter the valid id of customer in parameter to get details	That id needs to be present in database	1) Enters Valid Id 2) Enter Submit	Valid Id	Customer Deleted successfully	Customer Deleted successfully
2	Customer Deletion	enter the valid id of customer in parameter to get details	That id needs to be present in database	1) Enters Valid Id 2) Enter Submit	Valid Id	Customer Details with this id you want to delete is not present	Customer Details with this id you want to delete is not present

For Washer Registration

Test CASE ID	TEST CASE SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULT	ACTUAL RESULTS
1	Washer registration	enter all the required fields to get registered	that id needs to be present in database	1) Enter name=jack email=abc@gmail.com phone=1234567891 address=delhi 2) Enter Submit	Valid Details	Washer Registration Successfully	Washer Registration Successfully
2	Washer registration	enter all the required fields to get registered	That id needs to be present in database	2) Enter name= jack email=abcmail.com phone=1234567891 address= delhi 2) Enter Submit	InValid email	In email there should be @	In email there should be @
3	Washer registration	enter all the required fields to get registered	Washer must enter all the required field as per specified in schema	3) Enter name= jack email=abc@gmail.com phone=1234567891 address=delhi 2) Enter Submit	<All the Require d fields are available>	successful registration	successful registration

For Washer Listing

Test CASE ID	TEST CASE SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULT	ACTUAL RESULTS
1	Washer List	Enter the valid Washer Id of Washer in parameter to get details	That id needs to be present in database	1) Enters Valid Id 2) Enter Submit	Valid Id	Washer Details	Washer Details
2	Washer List	enters the wrong Washer Id which is not there in database to get Washer details	That id needs to be present in database	1) Enters invalid Id 2) Enter Submit	Invalid Id	Washer Details with this id is not present	Washer Details with this id is not present

For Washer Updation

Test CASE ID	TEST CASE SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULT	ACTUAL RESULTS
1	Washer Updation	enter the valid id of Washer in parameter to get details	that id needs to be present in database	1) Enters Valid Id 2) Enter Submit	Valid Id	Washer Update Successfully	Washer Update Successfully
2	Customer Updation	Enter the wrong id which is not there in database to get Washer details	That id needs to be present in database	1) Enters Valid Id 2) Enter Submit	Valid Id	Washer Details with this id you want to update is not present	Washer Details with this id you want to update is not present

For Washer Deletion

Test CASE ID	TEST CASE SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULT	ACTUAL RESULTS
1	Washer Deletion	enter the valid id of customer in parameter to get details	That id needs to be present in database	1) Enters Valid Id 2) Enter Submit	Valid Id	Washer Deleted successfully	Washer Deleted successfully
2	Washer Deletion	enter the valid id of Washer in parameter to get details	That id needs to be present in database	1) Enters Valid Id 2) Enter Submit	Valid Id	Washer Details with this id you want to delete is not present	Washer Details with this id you want to delete is not present