INSTITUTE FOR ADVANCED
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SOFTWARE DEVELOPMENT
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Documentation On

"Slot Booking for Charging an EV at Charging Station"

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Submitted By:

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Project Guide   Project Guide

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Introduction

This document is meant for the description of the structure and the database which we are using in this project. This document gives brief description about Architecture of the system, E-R diagram of the system and the table descriptions, the page navigation diagrams and the detail description for the page navigation.

Electric vehicles are more efficient, and that combined with the electricity cost means that charging an electric vehicle is cheaper than filling petrol or diesel for your travel requirements. Using renewable energy sources can make the use of electric vehicles more eco-friendly.

Architecture Design

Following diagram shows the details of the e-faming system architecture
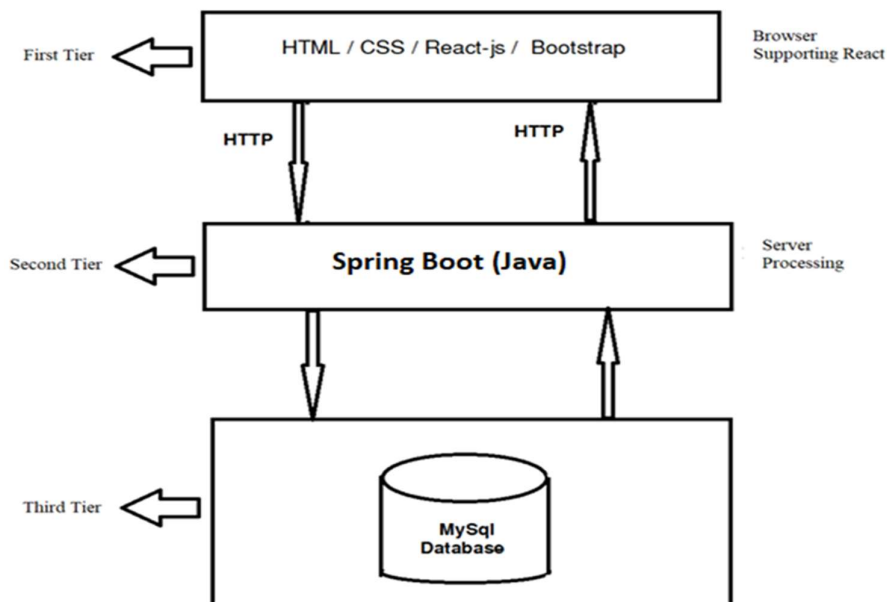
This System consist of three tiers as listed below:-

First Tier:

This tier is used for user interface and it is called as client tier. In this tier we are using React-JS because of it provides better interactivity, easier navigation, compact and also helps us to create single page application . The use of JSX script facilities us for the client side validation. That's why in first tier we are using the JSX script. We are using HTML, CSS , BOOTSTRAP for the presentation purpose.

Second Tier:

Server Process:

This application requires database access to fetch various information. It will also need to update the database. To sync my application front-end, We are using Spring boot as a middle tier. The choice of Spring boot was made because we want it to scale properly and it is the fastest way we can achieve our desired result . This middle tier will serve the front-end with all the required data that it needs. It will also receive data from the front-end and update the back-end database.

Third Tier:

MySQL Database :

        We are using MySQL as our database management system . The reason we choose this as our data base because it is a relational data base system . It is the open source easy to use we can build and interact with MySQL by using only a few simple SQL statements. MySQL follows the working of a client/server architecture. There is a database server (MySQL) and arbitrarily many clients (application programs), which communicate with the server; that is, they can query data, save changes, etc. MySQL supports multi-threading that makes it easily scalable. It can handle almost any amount of data, up to as much as 50 million rows or more. The default file size limit is about 4 GB. However, we can increase this number to a theoretical limit of 8 TB of data MySQL uses Triggers, Stored procedures, and views that allow the developer to give higher productivity.

High Level Design: <u>E-R Diagram:</u>
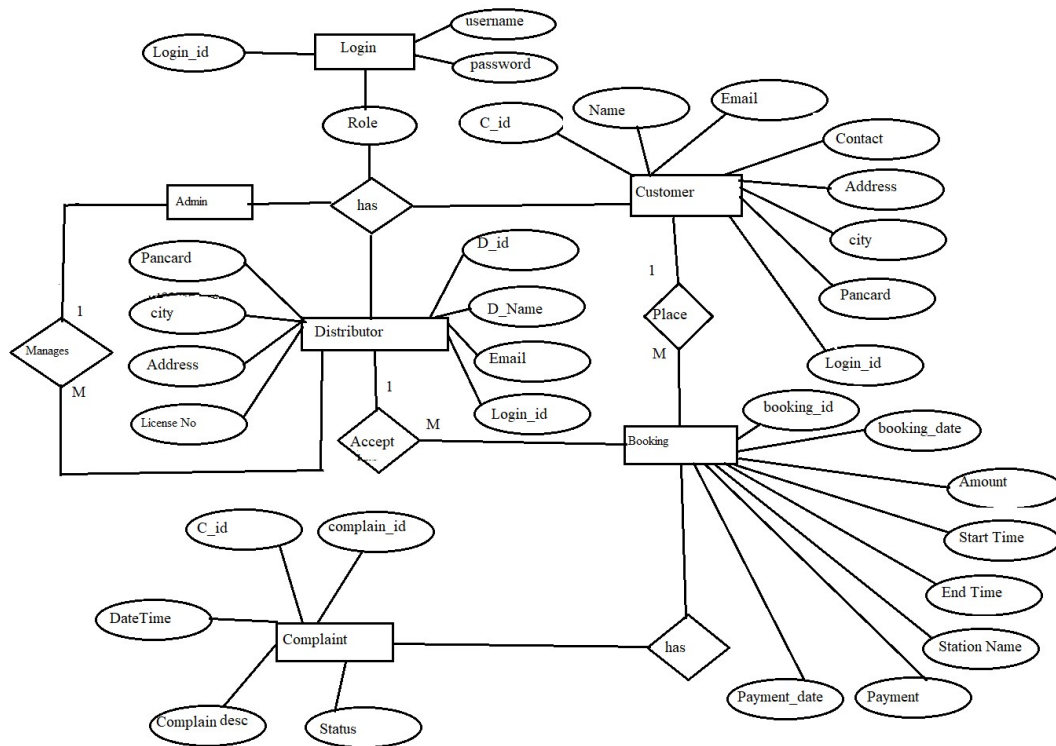
Above E-R Diagram shows that database of Slot booking for an Ev at Charging station consist of following entities:

• **Customer :**

This entity contains the Customer id , Name , Email-id , Password Contact Number ,Consumer Number , Address , Pan Card .

• **Distributer :**

This entity contains the Email id , Distributer name ,Distributer id ,

License -number , Location .

- **Message**

This entity contains the Message Id, Date-Time, Receiver-Status, Sender-Status, Receiver Id, Sender Id, Message, Subject attributes.

- **Admin**

This entity contains the Admin id, Password .

- **Payment**

This entity contains the Transection id, Withdraw, Fid, Sender Account Number , Receiver Account Number , Amount, Date Time, Seller Status, Buyer Status attributes.

Page Navigation Diagram:

- **Customer :**Following diagram explains the page navigation for the Customer module:
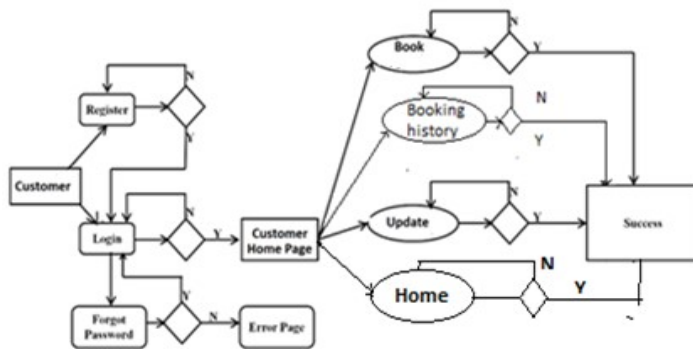
- **Distributer**

Following diagram explains the page navigation for the farmer module:
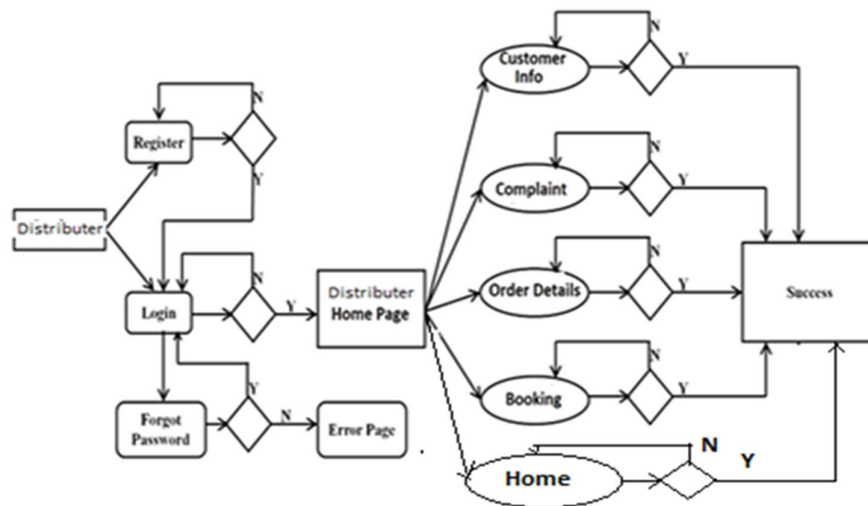
Fig.Page Navigation for Distributer

- **Admin**

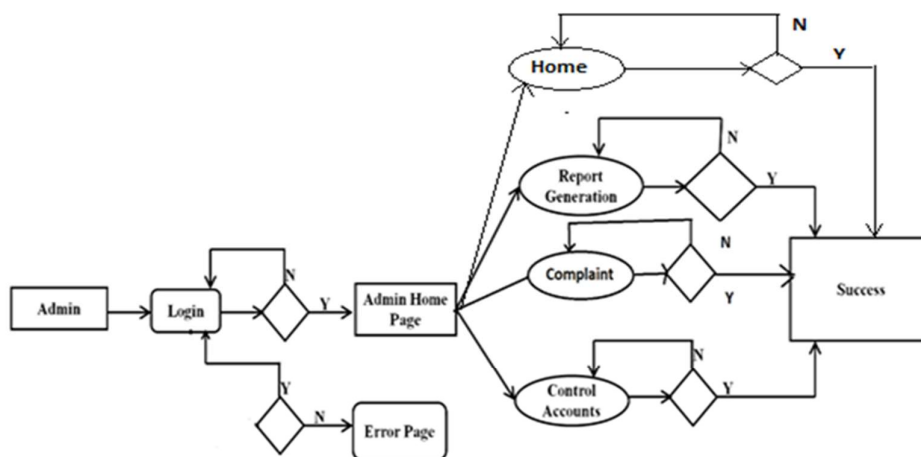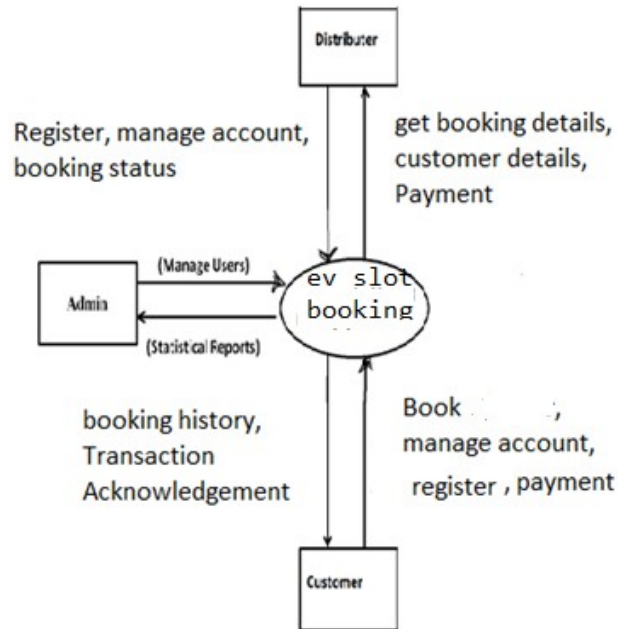   Following diagram explains the page navigation for the Admin   module:

Fig. Page Navigation For Admin

Data Flow Diagram:

Fig. 0-Level DFD
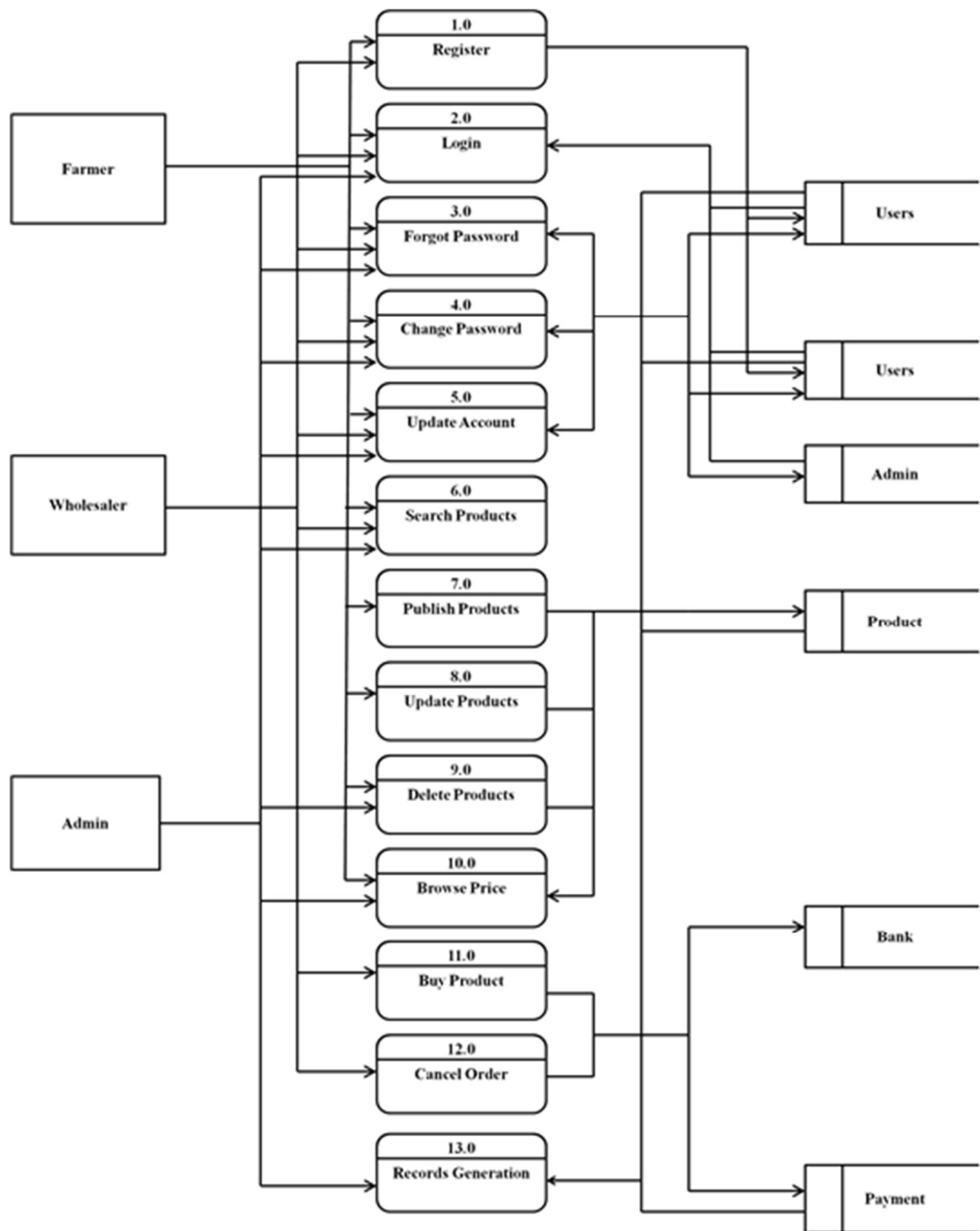
•In 0-Level DFD, there are three Entities:

•Customer

•Distributer

•Admin

- **1-Level DFD:**

<u>In 1-Level DFD,</u>

<u>Costumer Entity having following processes:</u>

• Registration/new connection

• Select distributor

• Sign in

• Profile management

• Update profile

• Booking management

• View all booking

• Add a booking

• Cancel booking

• Logout

Distributer Entity having following processes:

• Registration

• Sign in

• Distributor Profile Management

• update profile

• Consumer Management

• approve consumer (with sending e-mail notification)

• view all the consumers

• Logout

Admin Entity having following processes:

• Sign In

• Profile Management

• Update profile

• Distributor Management

• Approve distributor (with sending e-mail notification)

- •   View distributor list

- •   Suspend/block distributor

- •   Unblock distributor

- •   Consumer Management

- •   View all consumers

- •   Suspend consumers

- •   Orders Management

- •   View all orders of distributor

- •   View pending orders of distributor

- •   Feedback Management

- •   feedbacks from consumers

- •   Orders Management

- •   Payment management

- •   Payment status of consumers

- •   Logout

- **Low Level Design:**

- **Database Design:**

1]   Login Table

Field	Type	Null	Key	Default	Description
login_id	Integer(5)	No	Primary key	-	Login_id
user_name	Varchar(15)	No		-	User name
password	Varchar(8)	No		-	Password
role	Varchar(15)	No		-	As a Admin/Customer/ Distributer

2]   Table _Customer_ detail

Field	Type	Null	Key	Default	Description
cid	Integer	No	Primary key	Null	User ID
name	Varchar(45)	No		-	Name
email	Varchar(45)	No		-	Email ID Of Consumer
contact	Integer(10)	No		-	Contact No. Of Consumer
address	Varchar(100)	No		-	Permanent Address
city	Varchar(15)	No		-	City
login_id	Integer(5)	No	Foreign key	-	Login id of customer
pancard	Varchar(8)	No	-	-	Pancard for proof customer
consumer_number	Integer(17)	No		-	Consumer Number Given By Agencies
d_id	Integer	No	Foreign key	-	Distributer id to link with Order id and customer id

3]   Table _Distributer_ detail

Field	Type	Null	Key	Default	Description
d_id	Integer	No	Primary key	-	Distributer ID
d_name	Varchar(45)	No		-	Distributer Name
email	Varchar(45)	No		-	Email ID Of Distributer
login_id	Integer(5)	No	Foreign key	-	Login id of distributer
license_Number	Integer	No		-	License Number of Distributer
pancard	Varchar(8)	No	-	-	Pancard for proof Distributer
address	Varchar(100)	No		-	Permanent Address
city	Varchar(15)	No		-	City

4]   Tbl_booking_table

Field	Type	Null	Key	Default	Description
booking_id	Integer	No	Primary key	-	Booking_ ID
booking_date	Date	No		-	Booking_Date
amount	Double	No		-	Amount To Be Transfer
Start time	Time	No		-	Charging start time
End time	Time	No		Null	Charging end time
Vehicle no	Varchar (15)	No		-	Vehicle No
Charging station Name	Varchar (15)	No	Foreign key		Distributer Name
payment_mode	Varchar (15)	No			COD/UPI/NetBanking
transection_id	Integer	No	-	-	Transection_id
payment_date	Date	No	-	-	Payment date
status	Varchar (15)	No	-	-	Completed/Cancel/pending

5]   Tbl_Complain

Field	Type	Null	Key	Default	Description
complain_id	Integer	No	Primary key	-	Comaplain
cid	Integer	No	Foreign key	-	Customer ID
date_time	Date_time	No	-	-	Date And Time Of Message
status	Varchar(200)	No	-		Pending/received /cancel
complain_description	Varchar(200)	No	-	-	Complain Description

- **Stored Procedure:**

- **CreateCustomer:**

This stored procedure is used for creating new user

Input parameters:

Cid, Name, Email, Password, Contact, Address, , Consumer No , Pan card .

- **SendMessage:**

This stored procedure is used for inserting message details

Input parameters:

ReceiverId, SenderId, Message, Subject

- **Details Page Navigation:**

- **Home Page:**

- **Following snapshot shows the home page of the Slot Booking for an EV**

at charging station.

Home page:

Login Page:

Admin page/Admin Dashboard

Admin -> get customer page:

Admin -> get distributer page

Admin -> latest booking page

New Customer registeration form:

New Distributer registeration form

Customer -> book slot page
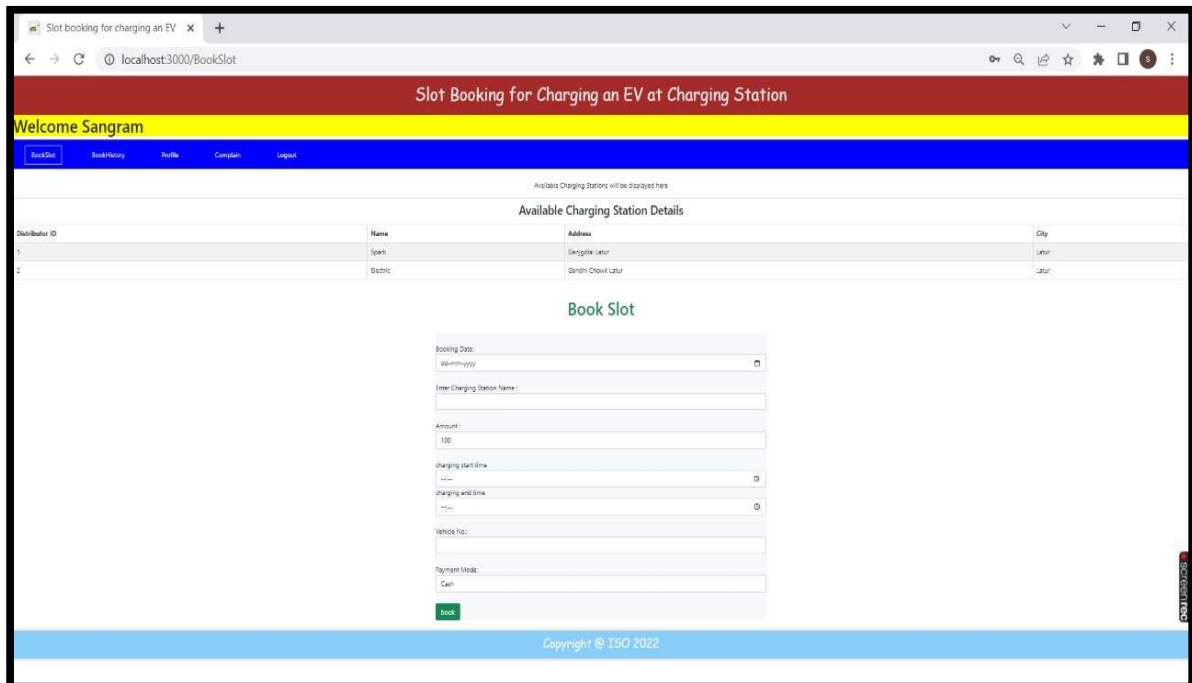
Customer -> book history page

Slot Booking for Charging an EV at Charging Station

Welcome Sangram

BookSlot   BookHistory   Profile   Complain   Logout

Booking Details

bid	book_date	Charging Station Name	amount	Charging start time	Charging end time	Vehicle No.	payment_mode	Operation
1	2022-04-10T00:00:00.000+00:00	Spark	100	10:06	11:06	MH24M3264	Cash	
2	2022-04-10T00:00:00.000+00:00	spark	100	13:15	14:15	MH24X1975	Cash	
3	2022-04-13T00:00:00.000+00:00	Spark	100	12:49	13:49	Mh24X1234	Cash	

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Customer -> profile page

Slot Booking for Charging an EV at Charging Station

Welcome Sangram

BookSlot   BookHistory   Profile   Complain   Logout

Customers will be displayed here

Customer Details

Cid	Name	conpassword	Email	Contact	Address	City	Login_id	Pancard	Operation
1	Sangram	123456	sangram@gmail.com	1123654897	Sham Nagar Latur	Latur	4	1235645499	
2	Shilpa	123456	sspawale14@gmail.com	1234567895	akurdi pune	pune	7	1234568777	

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Customer -> complaint page

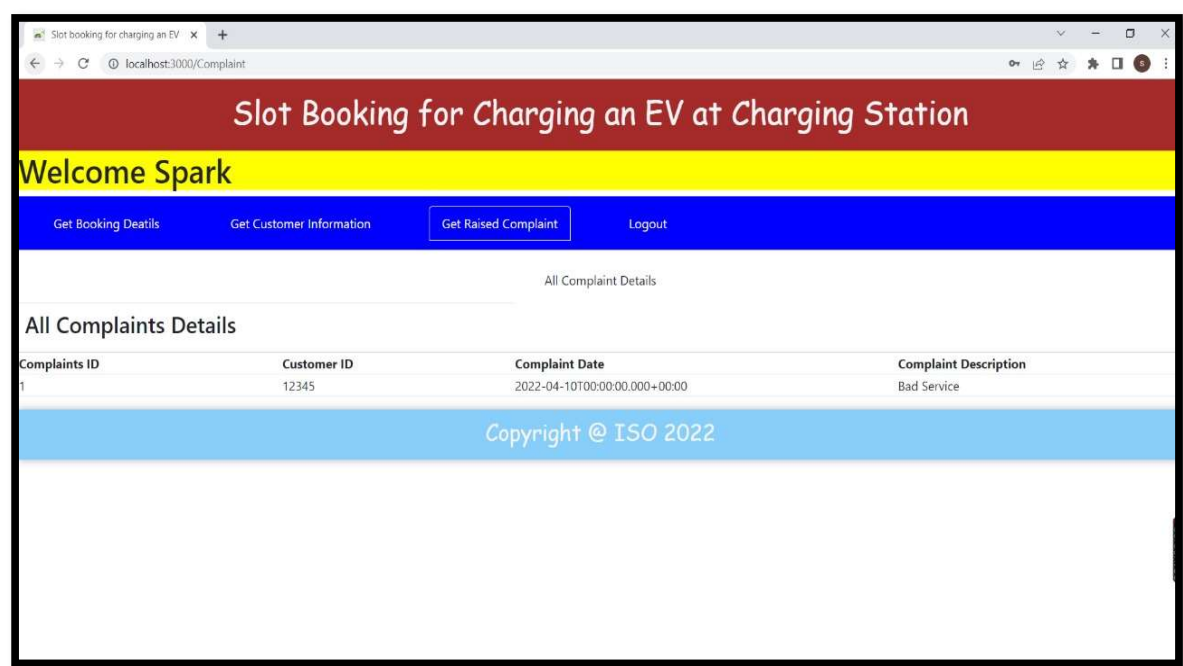**Distributer -> home/dashboard page**

Distributer -> get booking details
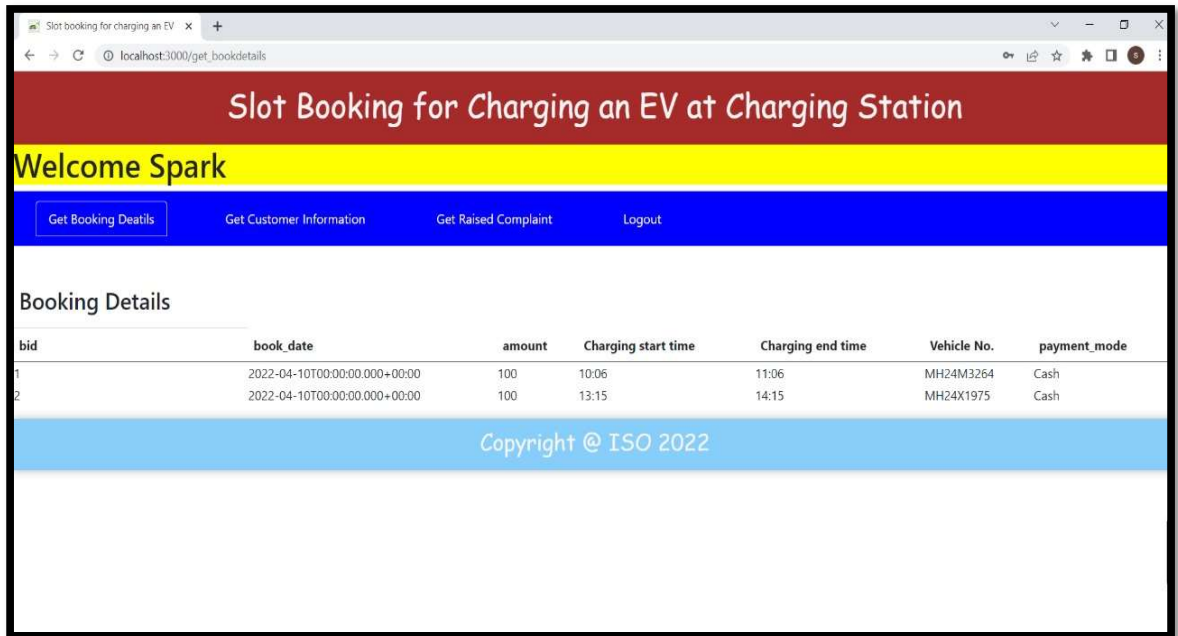
Distributer -> get customer information page
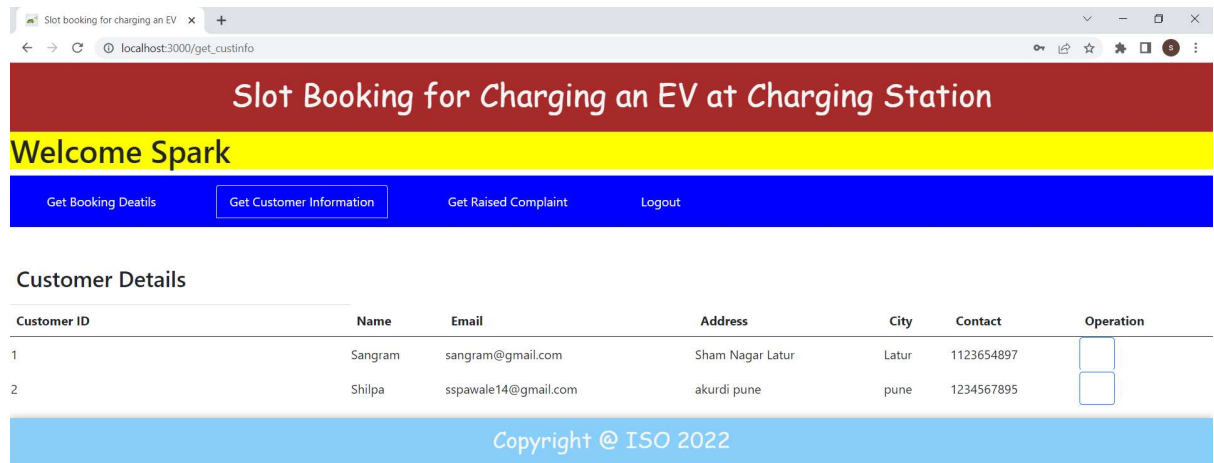
Distributer -> get raised complaint page

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