1. System Requirement Specification

Software/Languages required to run the application:
1. PHP
2. XAMPP Web Server
3. MySQL (Single Instance)
4. Any Web Browser

Abstract- An online car rental system is a service that allows users to request the admin to rent a car from a list of cars for a particular duration of time or on kilometer basis. It basically allows the users to login, then he can see a list of available cars from where he can select a car, then he enters the basis of renting i.e. kms or day basis. Then the user is allowed to select a driver from a list of available drivers. After selecting all this the user places a request for issuing the car. Then the admin can login and can add drivers and cars. He can also check the cars that are currently rented. Then the user can return the car after paying his fare. Once the car is successfully returned, it comes back to the list of available cars and also that particular driver becomes available for future renting.

There are two main characters of the system:
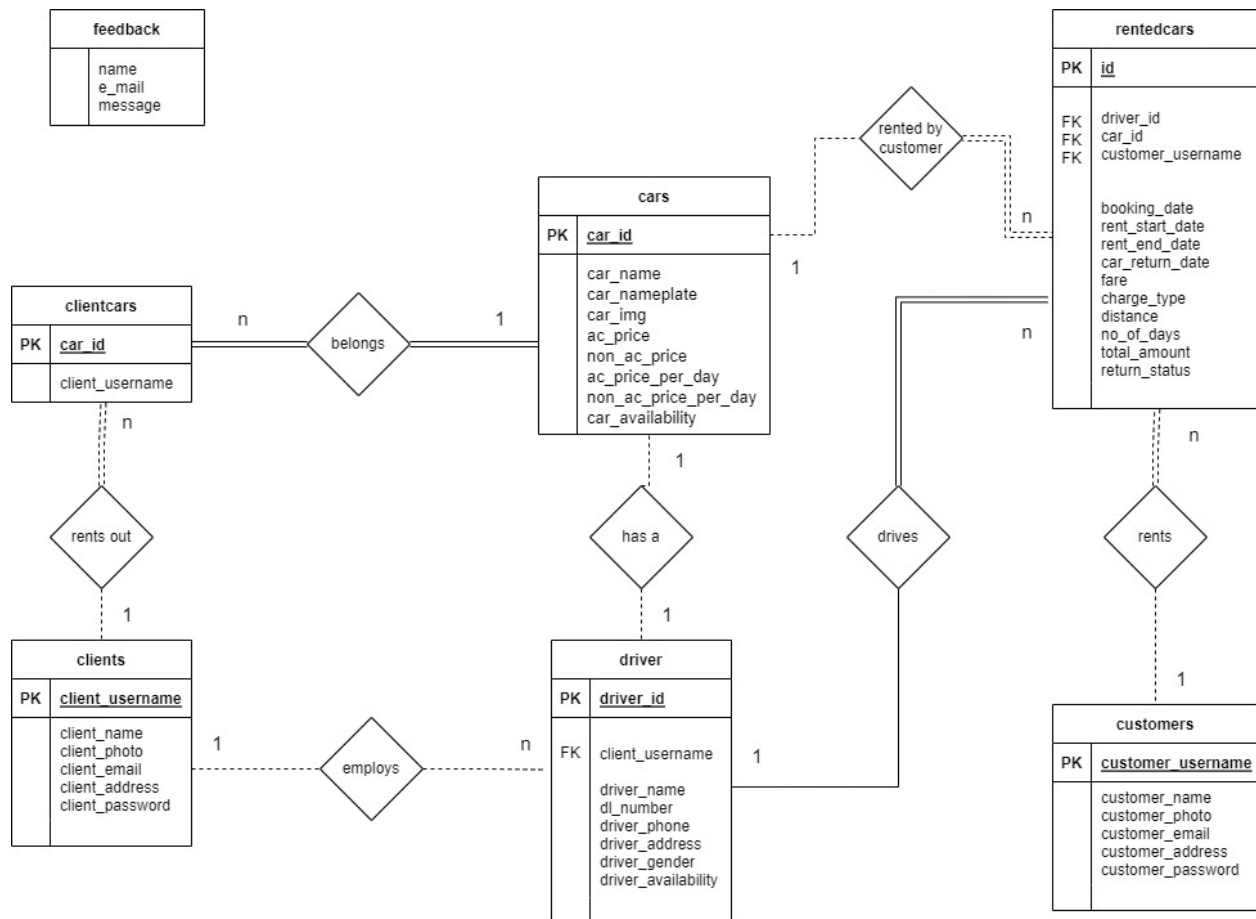1. Customer
2. Employee (admin)

Customer:- A customer can rent a car from the available list of cars. He has the option to pay at an hourly or daily rate. He can also pre-return the car at any given point of time.

Employee:- An employee rents out his cars to the customers. He has the option to add new cars/drivers and/or view the recent transactions related to their cars.
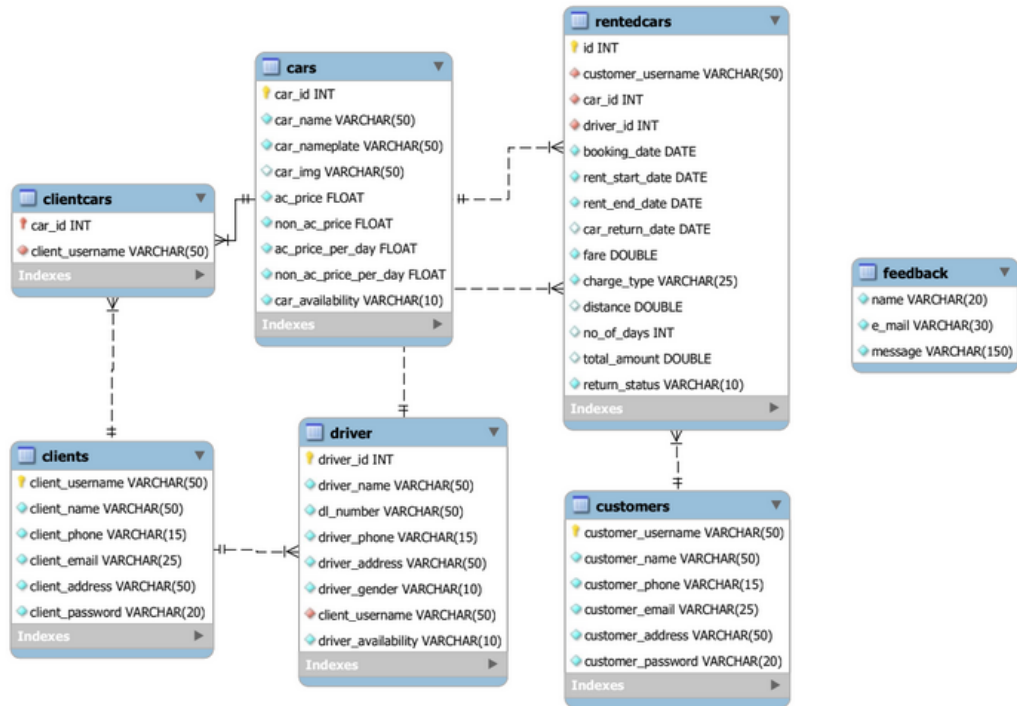
2. System Modeling

2.1. Entity Relationship Diagram

The ER diagram for the application is shown below:

feedback
- name
- e_mail
- message

rentedcars
- PK id
- FK driver_id
- FK car_id
- FK customer_username
- booking_date
- rent_start_date
- rent_end_date
- car_return_date
- fare
- charge_type
- distance
- no_of_days
- total_amount
- return_status

cars
- PK car_id
- car_name
- car_nameplate
- car_img
- ac_price
- non_ac_price
- ac_price_per_day
- non_ac_price_per_day
- car_availability

clientcars
- PK car_id
- client_username

clients
- PK client_username
- client_name
- client_photo
- client_email
- client_address
- client_password

driver
- PK driver_id
- FK client_username
- driver_name
- dl_number
- driver_phone
- driver_address
- driver_gender
- driver_availability

customers
- PK customer_username
- customer_name
- customer_photo
- customer_email
- customer_address
- customer_password

Relationships: rented by customer, belongs (n–1), has a (1–1), drives, rents (n–1), rents out (n–1), employs (1–n)

EER Diagram:

2.2. Schema Design

cars

car_id	car_name	car_nameplace	car_img	ac_price	non_ac_price	ac_price_per_day	non_ac_price_per_day	car_availability

rentedcars

id	driver_id	car_id	customer_username	booking_date	rent_start_date	rent_end_date	car_return_date	fare	charge_type	distance	no_of_days	total_amount	return_status

customers

customer_username	customer_name	customer_phone	customer_email	customer_addres	customer_password

driver

driver_id	driver_name	dl_number	driver_phone	driver_address	driver_gender	client_username	driver_availability

clients

client_username	client_name	client_phone	client_email	client_address	client_password

clientcars

car_id	client_username

feedback

name	e_mail	message

2.3. Normalization

It is clearly visible that all tables are in 1NF as there are no tables with multivalued attributes.

We have ensured that in all the tables, all attributes depend upon the candidate key only and not on any part of the candidate key hence there are no partial dependencies. Hence all tables are in 2NF.

Also, we have ensured that no non-prime attributes are able to identify other non-prime attributes in the tables. Hence the schema is in 3NF.

The tables have been designed in such a way that the primary key of every table is also a superkey. Hence by definition of BCNF, the proposed schema is in BCNF.

Hence highest normalization of the proposed schema is BCNF.

2.4. List Of Tables Required

cars(<u>car_id</u>, car_name, car_nameplate, car_img, ac_price, non_ac_price, ac_price_per_day, non_ac_price_per_day, car_availability**)**

rentedcars(<u>id</u>, customer_username, car_id, driver_id, booking_date, rent_start_date, rent_end_date, car_return_date, fare, charge_type, distance, no_of_days, total_amount, return_status**)**

customers(<u>customer_username</u>, customer_name, customer_phone, customer_email, customer_address, customer_address**)**

driver(<u>driver_id</u>, driver_name, dl_number, driver_phone, driver_address, driver_gender, client_username, driver_availability**)**

clients(<u>client_username</u>, client_name, client_phone, client_email, client_address, client_password**)**

clientcars(<u>car_id</u>, client_username**)**

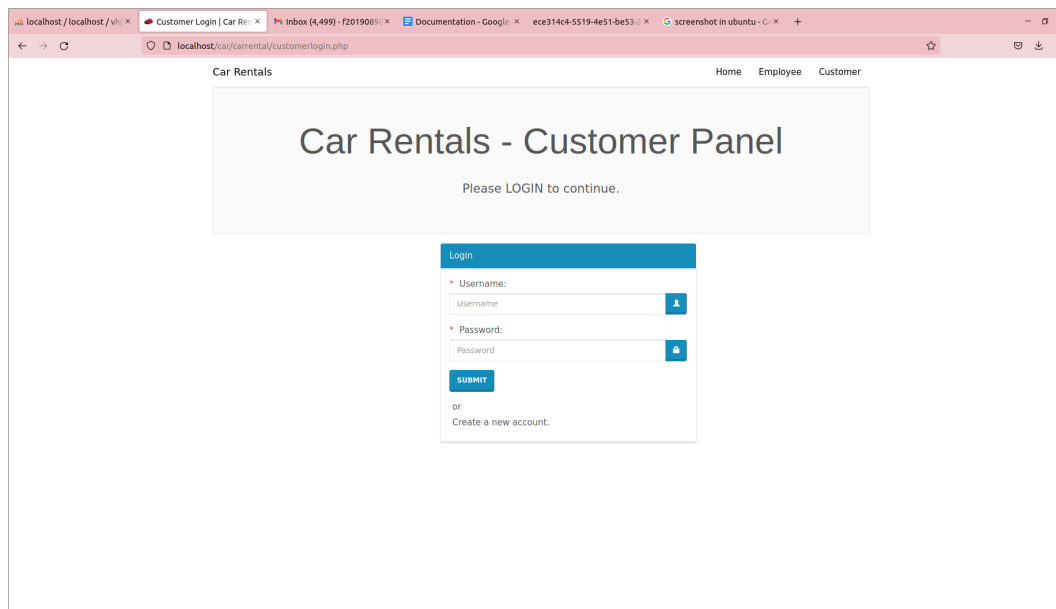**feedback(**name, e_mail, message**)**

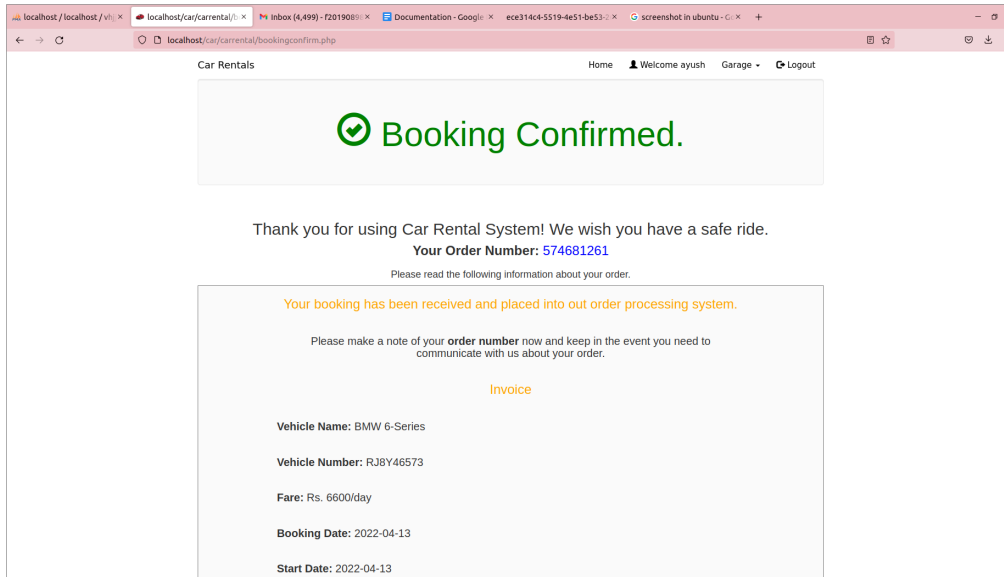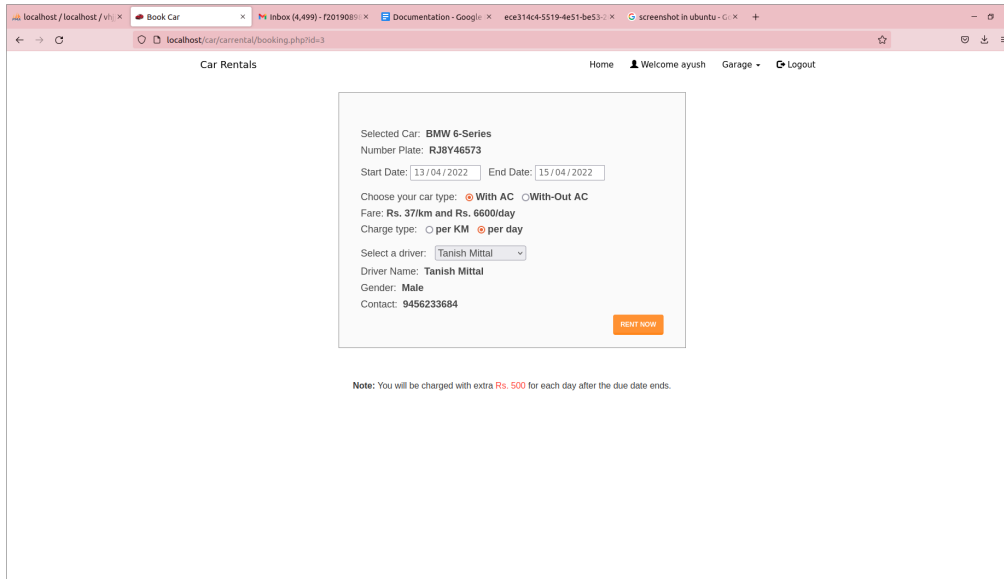## 2.5. Additional Functionalities:

When you open the application this below shown page appears.
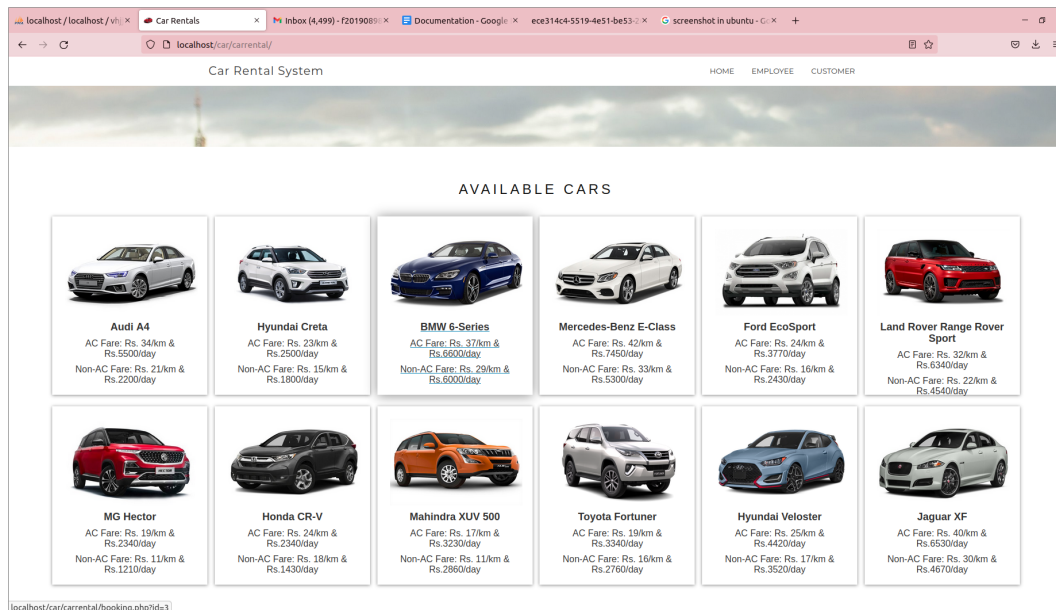
When you click on the customer, the customer login page appears. Here you can try logging in with "ayush" as username and "passkey" as password.

The below screenshots shows that when a customer selects a car for renting, he fills the required details and once the details are filled his booking is confirmed. The user can see his bookings and return the car. The admin or the employee can add a car or add a driver to the system.

localhost / localhost / v h ×   Book Car   ×   Inbox (4,499) - f2019089 ×   Documentation - Google ×   ece314c4-5519-4e51-be53-2 ×   screenshot in ubuntu - G ×   +

localhost/car/carrental/booking.php?id=3

Car Rentals   Home   👤 Welcome ayush   Garage ▾   🔒 Logout

Selected Car: **BMW 6-Series**
Number Plate: **RJ8Y46573**
Start Date: 13/04/2022   End Date: 15/04/2022

Choose your car type: ⦿ **With AC**   ○ **With-Out AC**
Fare: **Rs. 37/km and Rs. 6600/day**
Charge type: ○ **per KM**   ⦿ **per day**

Select a driver: [Tanish Mittal ▾]
Driver Name: **Tanish Mittal**
Gender: **Male**
Contact: **9456233684**

RENT NOW

Note: You will be charged with extra Rs. 500 for each day after the due date ends.

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localhost / localhost / v h ×   localhost/car/carrental/b ×   Inbox (4,499) - f2019089 ×   Documentation - Google ×   ece314c4-5519-4e51-be53-2 ×   screenshot in ubuntu - G ×   +

localhost/car/carrental/bookingconfirm.php

Car Rentals   Home   👤 Welcome ayush   Garage ▾   🔒 Logout

✅ Booking Confirmed.

Thank you for using Car Rental System! We wish you have a safe ride.
Your Order Number: 574681261
Please read the following information about your order.

Your booking has been received and placed into out order processing system.

Please make a note of your **order number** now and keep in the event you need to
communicate with us about your order.

Invoice

Vehicle Name: BMW 6-Series

Vehicle Number: RJ8Y46573

Fare: Rs. 6600/day

Booking Date: 2022-04-13

Start Date: 2022-04-13

localhost / localhost / vhj × | localhost/car/carrental/m × | Inbox (4,499) - f2019089 × | Documentation - Google × | ece314c4-5519-4e51-be53-2 × | G screenshot in ubuntu - Gc × | +

← → C | localhost/car/carrental/mybookings.php | ☆

Car Rentals   Home   👤 Welcome ayush   Garage ▾   ⏻ Logout

Your Bookings

Hope you enjoyed our service

Car	Start Date	End Date	Fare	Distance (kms)	Number of Days	Total Amount
BMW 6-Series	2022-07-23	2022-07-24	Rs. 2600/day	-	1	Rs. 2600
BMW 6-Series	2021-03-24	2021-03-25	Rs. 2600/day	-	1	Rs. 2600
Jaguar XF	2021-03-24	2021-03-26	Rs. 6100/day	-	2	Rs. 12200
BMW 6-Series	2022-04-13	2022-04-15	Rs. 6600/day	-	2	Rs. 13200

localhost / localhost / vhj × | localhost/car/carrental/p × | Inbox (4,499) - f2019089 × | Documentation - Google × | ece314c4-5519-4e51-be53-2 × | G screenshot in ubuntu - Gc × | +

← → C | localhost/car/carrental/prereturncar.php | ☆

Car Rentals   Home   👤 Welcome ayush   Garage ▾   ⏻ Logout

Return your cars here

Hope you enjoyed our service

Car	Rent Start Date	Rent End Date	Fare	Action
BMW 6-Series	2022-04-13	2022-04-15	Rs. 6600/day	Return

localhost / localhost / vhj | localhost/car/carrental/p | Inbox (4,499) - f2019089 | Documentation - Google | ece314c4-5519-4e51-be53-2 | screenshot in ubuntu - G

localhost/car/carrental/printbill.php?id=574681261

Car Rentals   Home   👤 Welcome ayush   Garage ▾   🔄 Logout

✅ Car Returned

Thank you for visiting Car Rentals! We wish you have a safe ride.

Your Order Number: 574681261

Please read the following information about your order.

Your booking has been received and placed into out order processing system.

Please make a note of your **order number** now and keep in the event you need to communicate with us about your order.

Invoice

Vehicle Name: BMW 6-Series

Vehicle Number: RJ8Y46573

Fare: Rs. 6600/day

Booking Date: 2022-04-13

Start Date: 2022-04-13

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localhost / localhost / vhj | localhost/car/carrental/cl | Inbox (4,499) - f2019089 | Documentation - Google | ece314c4-5519-4e51-be53-2 | screenshot in ubuntu - G

localhost/car/carrental/clientview.php

Car Rentals   Home   👤 Welcome krish   👤 Control Panel ▾   🔄 Logout

Your Bookings
Hope you enjoyed our service

Car	Customer Name	Rent Start Date	Rent End Date	Distance	Total Amount
Jaguar XF	Ayush Bisht	2021-03-24	2021-03-26		Rs. 12200
Ford EcoSport	Ishaan Bajaj	2022-06-01	2022-06-28	69	Rs. 5035
Honda CR-V	Ishaan Bajaj	2022-07-25	2022-07-30	60	Rs. 600
Ford EcoSport	Lalit	2022-07-23	2022-08-03		Rs. 28600
Mercedes-Benz E-Class	Rishabh Nagar	2022-07-01	2022-07-02	244	Rs. 5884

localhost / localhost / vhj ×   localhost/car/carrental/e ×   Inbox (4,499) - f2019089 ×   Documentation - Google ×   ece314c4-5519-4e51-be53-2 ×   screenshot in ubuntu - Gc ×   +

localhost/car/carrental/entercar.php

Car Rentals   Home   👤 Welcome krish   👤 Control Panel ▾   🕩 Logout

Please Provide Your Car Details.

Car Name

Vehicle Number Plate

AC Fare per KM (Rs)

Non-AC Fare per KM (Rs)

AC Fare per day (Rs)

Non-AC Fare per day (Rs)

Browse... No file selected.

SUBMIT FOR RENTAL

My Cars

Name	Nameplate	AC Fare (/km)	Non-AC Fare (/km)	AC Fare (/day)	Non-AC Fare (/day)	Availability
› Hyundai Creta	CH98G7645	23	15	2500	1800	yes
› Mercedes-Benz E-Class	TN8YT8762	42	33	7450	5300	yes

localhost / localhost / vhj ×   localhost/car/carrental/e ×   Inbox (4,499) - f2019089 ×   Documentation - Google ×   ece314c4-5519-4e51-be53-2 ×   screenshot in ubuntu - Gc ×   +

localhost/car/carrental/enterdriver.php

Car Rentals   Home   👤 Welcome krish   👤 Control Panel ▾   🕩 Logout

Enter Driver Details

Driver Name

Driving License Number

Contact

Address

Gender

ADD DRIVER

My Drivers

Name	Gender	License No.	Contact	Address	Availability
› Harshit	Male	Xam1234	98989898	Ram BHawan	yes
› Mayank Agarwal	Male	94587627723	5215663850	Faridabad	yes
› Prakhar Gupta	Female	04316015965	98987905630	4321 Wazirpur	no
› Ritik Gupta	Female	66787656789	7544440123	Ashoka Road	yes