Assignment 1: ER Modeling Turo.com

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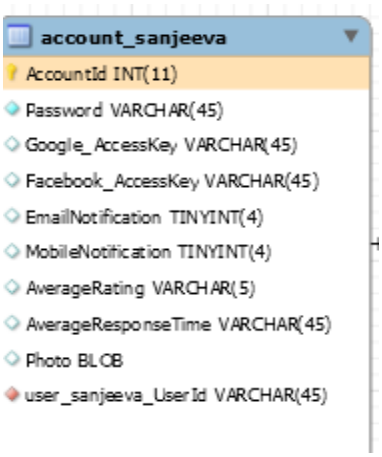
On the basis of the assumptions and images shared in the pdf, the explanation on the Model and ER diagram submitted with the assignment is as below:

Details on the implementation of assumptions part from the pdf is as below:

- A user can sign up via Facebook, Google or via email and create an account

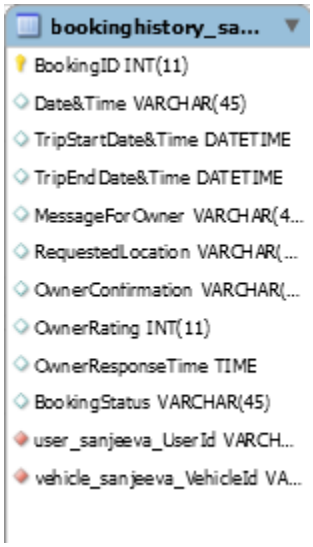


Solution:

The basic information about the user sign up is stored in the user table, once the user shows interest to create an account by submitting email id and password or using his Facebook and Gmail details then the related information is passed to the account table.

The image shown on the left is of account table which has attributes to store email, password, facebook and google information.

- An Owner can be a Guest too.



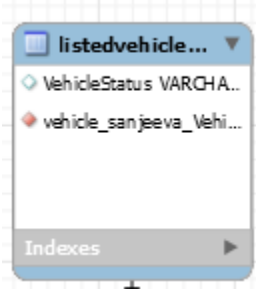
Solution:

This is implemented by storing the user id (which is created for the website visitor and accounts) and vehicle id in the booking history table.

Further, it is up to business logic to decide if the user sees his own vehicle or not while searching for the vehicle to rent.

Also the user table has details for the website user to login as guest instead of creating the account/ using the existing account while booking the vehicle.

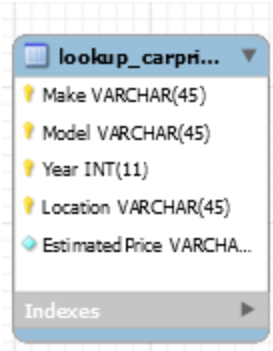
• You must capture the details of the listed cars in your design.



Solution:

The listed vehicle are stored independently in a separated table to make sure the details of the booking history does not get deleted.

• The Owner can let Turo come up with an estimate of the rental or set a price himself/herself

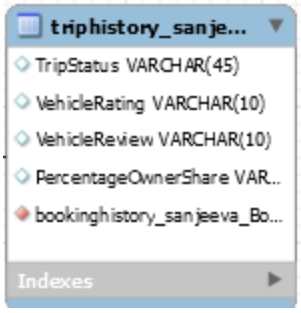


Solution:

As per the information on their blog there are certain attributes which account for the car pricing https://blog.turo.com/insights/how-turo-pricing-works

To make the model simple, I have chosen make, model, year and location to be the primary key in a look up table which define the estimate price. Also all the vehicles listed on the website will have information in the lookup table.

• The Owner gets a share of the trip amount. The database design should track the results of the pricing and payment for each Owner.

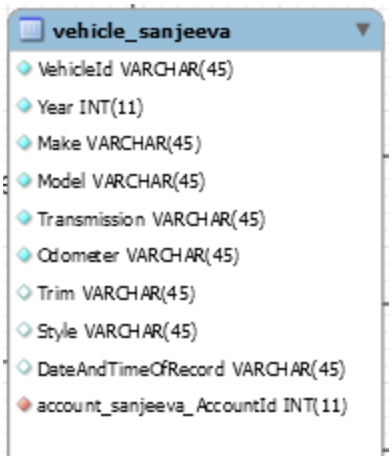


Solution:

Once the trip is completed or cancelled in between the information is stored in the trip history and this table also has the attribute for percentageownershare.

As per the information available on the website it depends on the protection or insurance plan of the vehicle : https://support.turo.com/hc/en-us/articles/203992000-What-will-I-earn-and-how-do-I-get-paid-

• A Guest can browse for cars based on makes and model to find the car he/she prefers to rent.

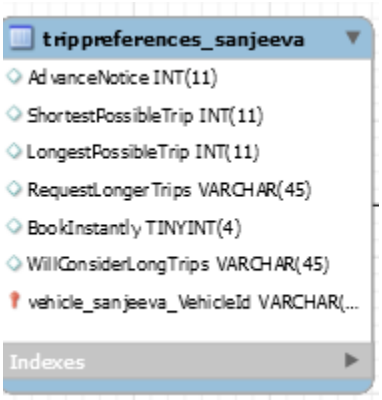


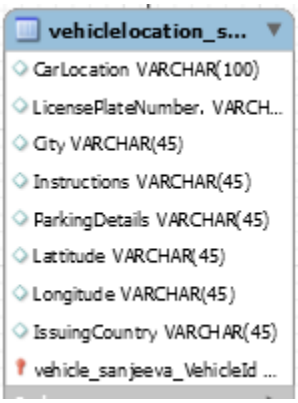
Solution:

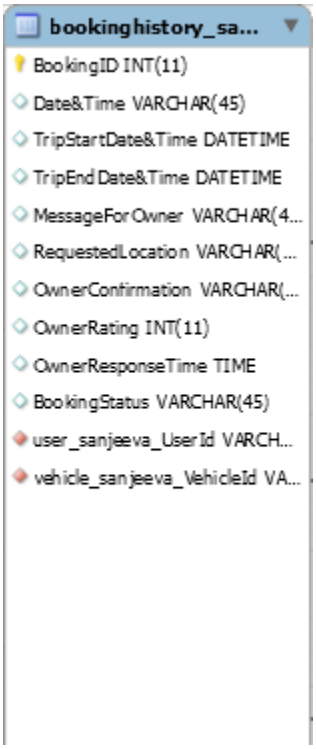
The information on makes and model is stored in vehicle_sanjeeva table which can be queried by guest to find relevant vehicles.

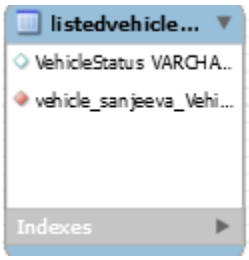
The assumption is that results of vehicle id generated on the choice of makes and model will further generate relevant information for the vehicle such as photos, vehicle description etc.

• The Guest can request to book a car by looking up the location and date for which he/she wishes to rent the car (if its available) or book a car instantly.





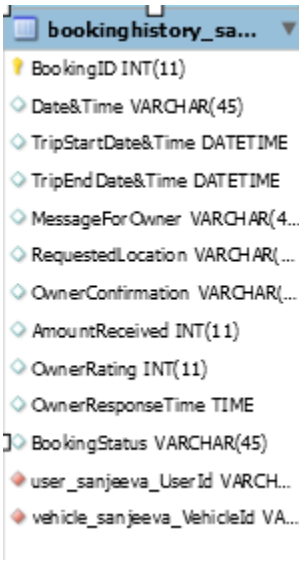




Solution:

Basis on the information of CarLocation form vehicelLocation_sanjeeva table and dates information of ShortestPossibleTrip, LongestPossibleTrip and BookInstantly from trippreferences_sanjeeva table, the required vehicle id can be searched if the vehicle is available in the listed vehicle table or if the unavailable vehicles will be available as per the dates in the booking history table.

• The Guest can meet the Owner at the location to get the keys or make a request to have the car delivered to a specified location



Solution:

The bookinghistory_sanjeeva table has an attribute which has details of RequestedLocation.

While submitting the booking the user can check a field and the particular input can be taken.

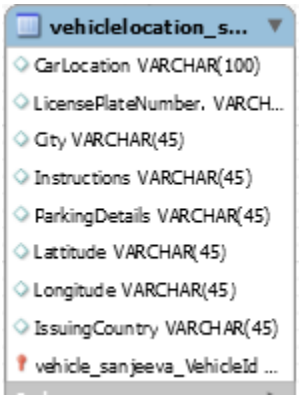
• A Host (when listing a car) provides information such as – license plate number, issuing country, state, photos of the car, location of the car, year, make, model, transmission, odometer, owner's photo, owner's date of birth, details of car availability, car description and car features

Solution: Refer to the ER diagram for attributes and tables, all of the attributes mentioned in the above point have been captured in the design.

• A guest can search for a car based on relevance, price, distance, instant booking, delivery, vehicle type, vehicle make, features, category, vehicle years, vehicle colors, transmission and distance included. The guest can also mention the location, date and time (duration) for when the car is needed.

Solution: Search can be performed using the tables which start with vehicle and using join among them. All the attributes mentioned above have been captured please refer to the ER diagram.

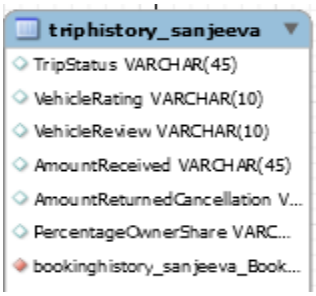
• Guests could select area using the map feature available on the website. You should translate that into the Zip codes the cars are available in.



Solution: The latitude and longitude coordinates basis the location entered by the user are fetched using an api or service like one available on https://www.gps-coordinates.net/

And are further stored automatically in the table to display them on the map.

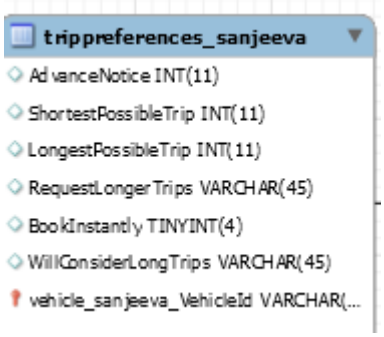
- The guest can leave reviews for the car after the trip



Solution:

This is captured in the triphistory_sanjeeva table which has variables to capture car rating and review.

- The guest can select the car from the list/map and make a request to book/book instantly

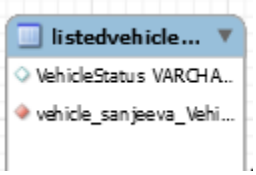


Solution:

By default the value of the BookInstantly attribute in trip preference table can be set to 1 for the vehicles when they are listed. So unless the owner/account disables it does not change.

Also basis this information the guest can book/book instantly from the list.

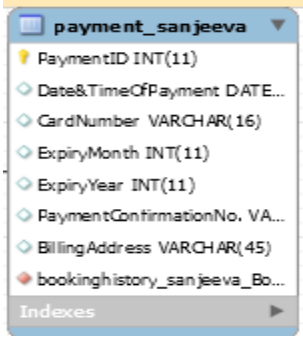
- The system keeps track of the car availability based on what's booked and the timeframe selected



Solution

A table by the name listedvehicle_sanjeeva tracks this information. The reason why this is not being kept as part of the vehicle table as the booking history table will have the details of all the vehicles.

- The system should keep track of the transaction details every time a booking is made

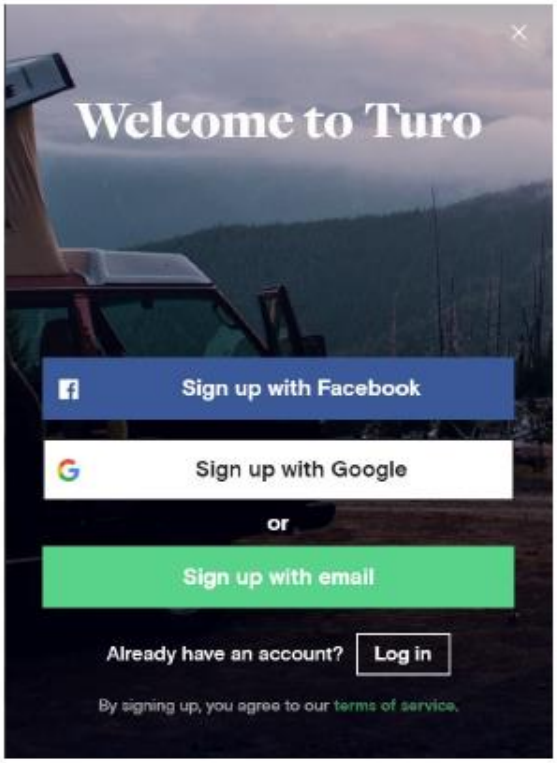


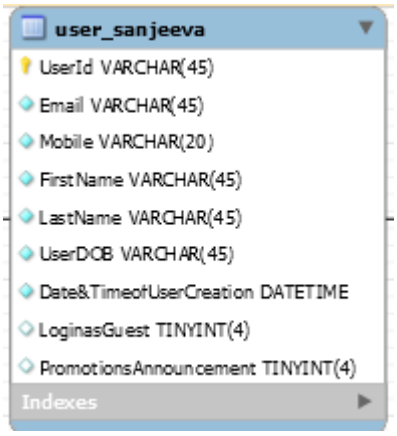
Solution:

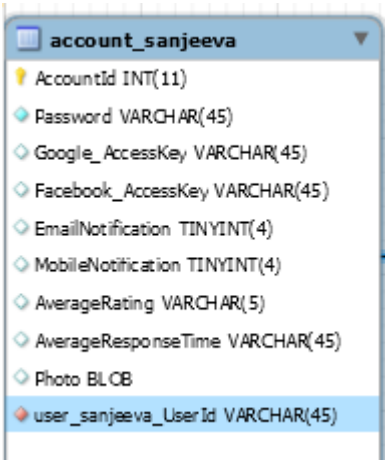
The payment table tracks the transaction details every time a booking is made.

Details on implementation of Snapshots

1. Login Page







2. Image for the add vehicle page and table implementation

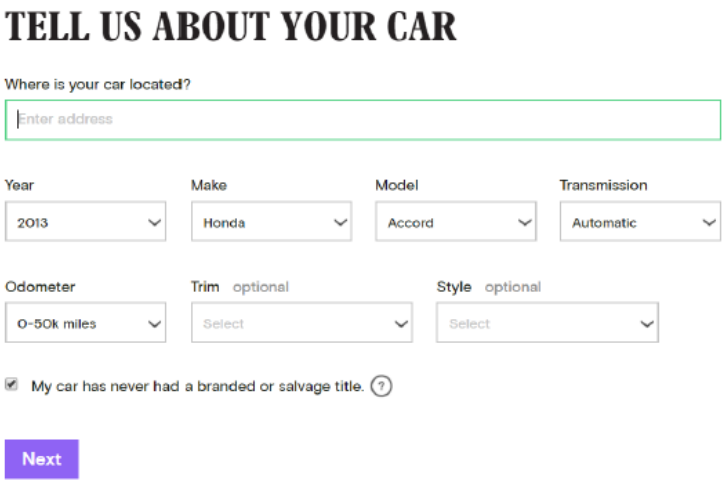
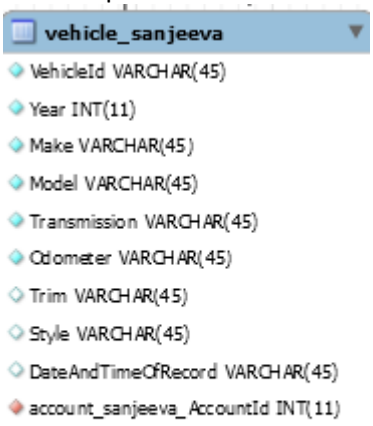


Table implemented



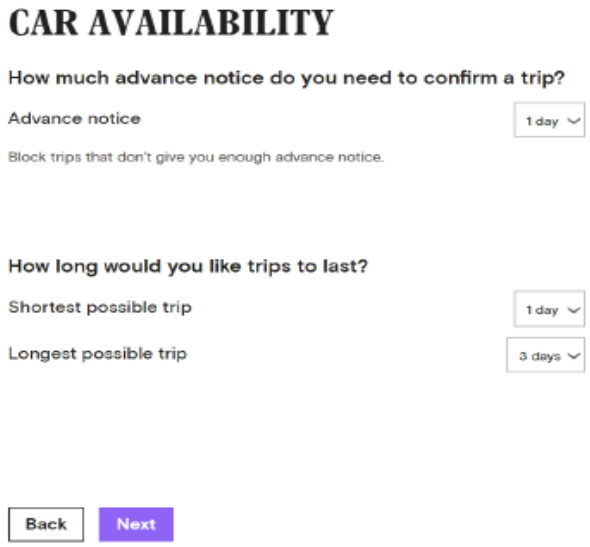
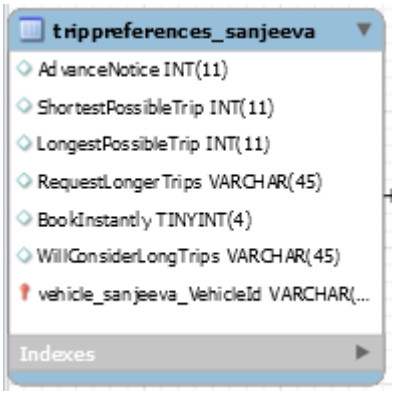


Table implemented



DETAILS

License plate number

Plate Number | Texas

Your license plate information won't be publicly visible

Car description

A detailed description will help you get more trips.

Describe the basics and unique features of your car.

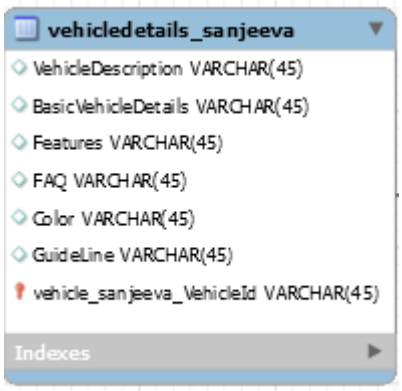
No need to include your contact info; travelers will receive it once you've confirmed their trip.

Car features

- Hybrid
- Bike rack
- All-wheel drive
- Child seat
- Snow tires or chains
- GPS
- Ski rack
- Bluetooth
- USB input
- Heated seats
- Audio input
- Convertible
- Pet friendly
- Toll pass
- Sunroof

Back | Next

Table implemented



CAR PHOTOS

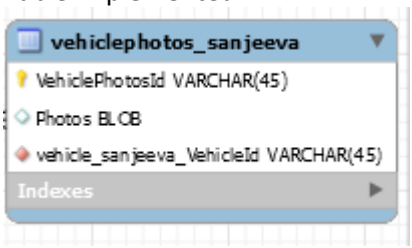
It's important for travelers to see your car before the request it. Once you have a good photo that shows the whole car, add more photos displaying the car's details and interior. Learn more about taking great photos.

Photos must be at least 640px by 320px.

Add photo

Back | Next

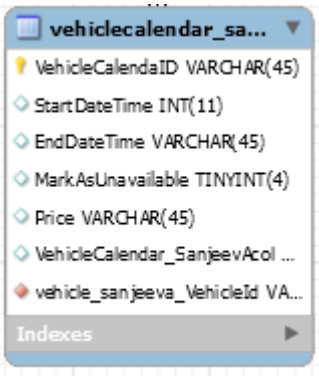
Table implemented



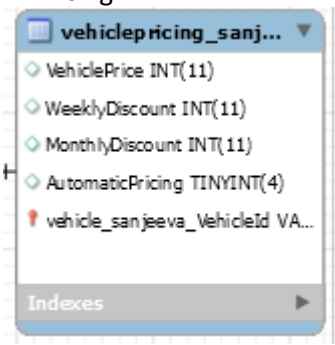
3. Once the table is published then further information is as below:

Tables implemented are as below:

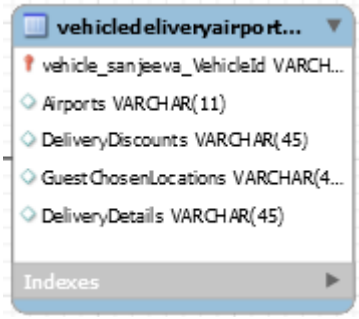
1. Vehicle Calendar



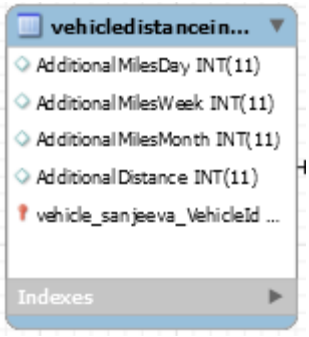
2. Pricing



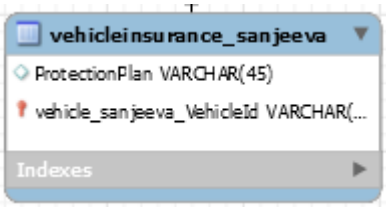
3. Delivery & airports



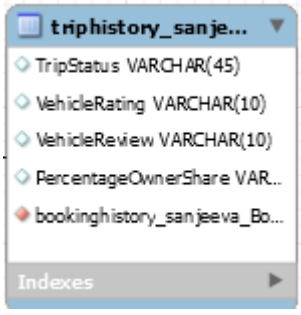
4. Distance Included



5.Vehicle Insurance



6. Trip history



4. Deleting a vehicle from listing

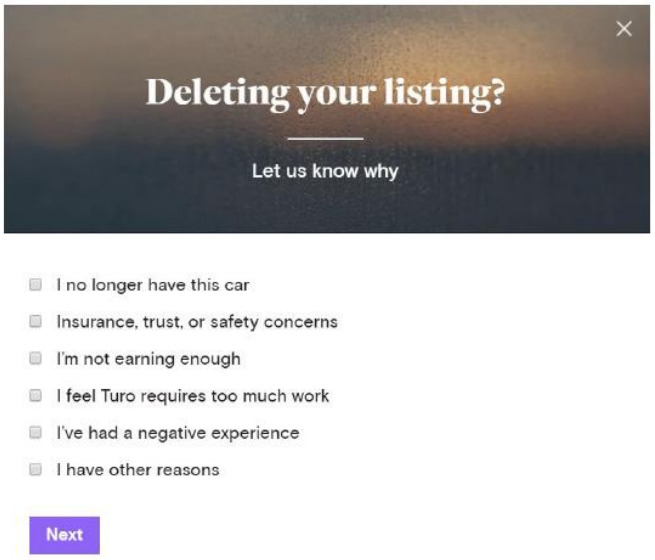
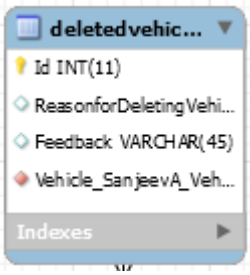
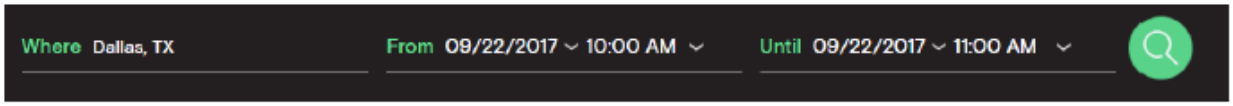


Table implemented:



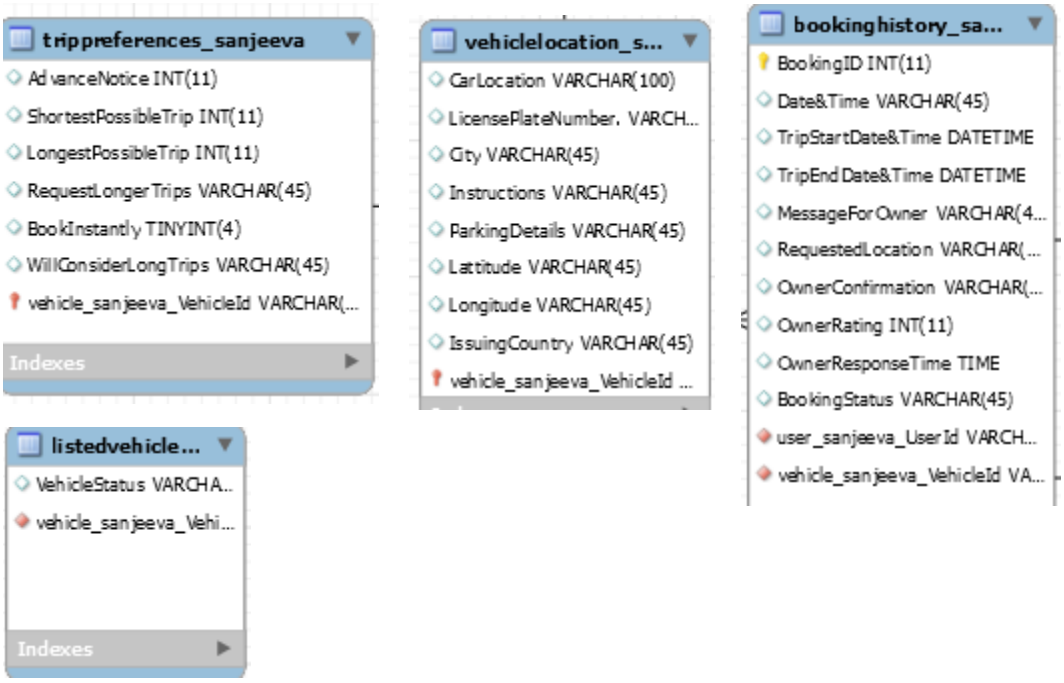
once the vehicle is deleted it is removed from the listing table however the record is still maintained in the database for the booking history tracking.

5. Guest search



The results can be generated using api to find the latitude and longitude and then matching with the latitude and longitude from the below table.

Further it require additional details and basis on the information of ShortestPossibleTrip, LongestPossibleTrip and BookInstantly from trippreferences_sanjeeva table, the required vehicle id can be searched if the vehicle is available in the listed vehicle table or if the unavailable vehicles will be available as per the dates in the booking history table.



Relationship mapped in the ER diagram are as below:

1. User Entity and Account Entity
    a. A user id is generated for every website visitor
    b. A user can choose to sign up or login as guest
    c. If the user signs up then the information of user id is stored in the account table
    d. Every account will have 1 and only 1 user id associated with it.
2. User Entity and Vehicle Entity
    a. An account created can add 0 or many vehicles
    b. Every vehicle will have only one account associated with it
3. Vehicle Entity and Vehicle Photos Entity
    a. A vehicle can have one or more photos and every photo will have one or more vehicle id associated with it
4. Vehicle Entity and Vehicle Calendar Entity
    a. A vehicle will have 0 or many vehicle calendar and each vehicle will have only one vehicle entity associated with it
5. Vehicle Entity and Vehicle details Entity
    a. A vehicle will have one vehicle details (min=1, max =1)
6. Vehicle Entity and vehicle Location Entity
    a. A vehicle will have only one vehicle location (min=1, max=1)
7. Vehicle Entity and ListedVehicle Entity
    a. A vehicle will have only one and only one listing (min=1, max=1)
8. Vehicle Entity and DeletedVehicle Entity
    a. A vehicle can have 0 or 1 entry in the deltedvehicle entity
9. Vehicle Entity and Vehicle Pricing Entity
    a. A vehicle will have 1 Vehicle pricing entity and visa versa (min=1, max=1)
10. Vehicle Entity and Delivery Airport Entity
    a. A vehicle will have only one vehicle deliveryairport (min =1, max=1)
11. Vehicle Entity and Vehicle Insurance Entity
    a. A vehicle will have one and only one insurance (min=1, max =1)
    b. A vehicle insurance will be associated with one vehicle entity (Min=1, max=1)
12. Vehicle Entity and trip Preference entity
    a. Each vehicle will have one trip preference entity and visa versa
13. Vehicle Entity and Distance included entity
    a. Each vehicle will have one trip preference entity and visa versa
14. User Entity and booking Entity
    a. A user can have 0 or many booking history but every booking history will have one and only one user id associated with it.
15. Vehicle Entity and booking Entity
    a. A vehicle can have 0 or many booking history associated with it
    b. Every booking will have one and only one vehicle associated with it.
16. Trip history Entity and Booking Entity
    a. Each trip history will have a booking id associated with it
17. Cancellationandrefund Entity and Booking Entity
    a. A cancellationandrefund entity can have 0 or 1 booking entity associated with it

18. Payment Entity and Booking history Entity
    a. Each payment will have one booking history associate with it
    b. Each booking history will have one payment associated with it

Other related tables which serve as look up table in the ER diagram are as below:

1. Car pricing lookup
2. Lookup promo code
3. Lookup protectionplan

Information of data in database

There are 22 entries for the user, 21 created account and one was guest (sanjeeveees@gmail.com) . Out of 21 accounts only 20 listed vehicles. As soon these vehicles were added each of them was made available in the listed vehicle.

There were 6 account (vehicle id 1000-1006) who deleted the vehicle after listing, this information is in the deleted table and were removed from the listed table.

Out of the remaining 14 vehicles, 7 are available for booking and the remaining 7 which are not available are because of the trip in progress and are in the booking history as they still have the trip in progress.

3 of the available vehicle (1008, 1009 and 1011) have are available for booking as they have completed the trip and their trip information is there in booking history, payment history and trip history.

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