



# **PRO CAR**

## **Relational Database Management System Project Report**

### **MIS 6326 Database Management**

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## 1. Problem Description:

PRO CAR is car rental service which provides unique benefit to the customers to rent a car as their heart desires and gives an opportunity of crowd source to provide a car for rent. Whether renting a car for a vacation or for business enterprise, Pro Car has wide range of sports, luxury and hybrid vehicles to meet the every car rental need. Moto of the company is to provide hassle free check in and check out time to satisfy the needs of the customer and make the ride delightful.

Pro Car has a unique benefit of crowd source the cars to rent; connecting people who want to rent a car and people who provides a car on rent. Pro Car thrives on customer satisfaction and building long term relationship with the customer and guarantees best price in the market by reducing the intermediaries. Pro Car also provides convenience benefit and is available in all the parking lots of the malls across the Dallas Fort Worth Area where the customer can drive away any car like a PRO. Adding electronic channel to avail the service provides possession utility and time utility where customer can access the service 24\*7 all over the year.

The target market for Pro Car is international students who do not own a car and visitors to the city who would want to explore around the city and part time workers, employees who have been reallocated overseas for short duration who would want to rent out their car.

The company's mission is to help customers pick any car in the lot and drive away like a professional. The company has approximately 6000 customers, and an average of 50 membership applications to provide car on rent per day. The current process of entering, maintaining and purging manual paper process needs to be automated to providing competitive edge for the company. To meet the ever increasing customer demand and provide best service quality for which the company stands a relational database is to be implemented. Relational database besides storing database also helps track customer reservations, date reserved, types of cars available and the location of the car.



## 2. Database Tables:

The database consists of 9 tables which are closely related to each other and contain crucial information for the business of the Pro Car, all the tables provide an ease to manage inventory and transaction details for Pro Car. The integrated database enables execution of dynamic query and provide optimization.

### Customer Table

Customers are central for the business and for our business transactions. This table contains all important information about the customer such as customer name, contact details and address information. The customer id consists of six alpha numeric code. The first two digits will be first two letters of customer's last name, the next two digits will be month of date of birth and the last two digits will be first two digits of license number.

**Table #1** Customer

Serial No.	Fiel	Description	Data Type	Remarks
1	<b>Customer_ID (PK)</b>	ID to identify single customer	Varchar(6)	Primary Key
2	Cust_First_Name	Customer's first name	Char(20)	Required
3	Cust_Middle_Name	Customer's middle name	Char(20)	Optional
4	Cust_Last_Name	Customer's last name	Char(20)	Required
6	Cust_Addr_1	Street address line 1	Char(30)	Required
7	Cust_Addr_2	Street address line 2	Char(30)	Required
8	Zip (FK)	Zip code	Number	Foreign key references Location table
9	Cust_Licence_No	License number	Number	Required
10	Cust_Licence_Expiry_Date	License Expiry date	Date/Time	Required
11	Cust_Licence_Issue_State	State of License Issue	Char(20)	Required
12	Insurance_No	Insurance number	Number	Required
13	Insurance_Expiry_Dt	Insurance expiry date	Number	Required

### Car Details

The car details table beacons on the information and type of the car. Each car is given an identification number as Car\_ID which will be primary key for the table. The key is a four digit number that is auto generated. Car details provide wide range of options for the customer to pick from.

Table #2 Car\_Details

Serial No.	Fiel	Description	Data Type	Remarks
1	<b>Car ID (PK)</b>	An ID to uniquely identify the car	Number	Primary key
2	<b>Owner_ID (FK)</b>	Owner's ID from Owner table	Number	Foreign key references Car Owner table
3	Car_Registration_No	Registration number for the car	Number	Required
4	Car_Year	Year of manufacture	Number	Required
5	Car_Model	Model of the car	Varchar(10)	Required
6	Car_Type	Type of the car	Varchar(10)	Required
7	Car_Color	Color of the car	Char(10)	Optional
8	Fuel_Economy	Fuel consumption of the car	Number	Optional
9	Date_Added	Date the car was added to the inventory	Date/Time	Required
10	Passenger_Capacity	Capacity of the car	Number	Optional
11	Insurance_No	Insurance number	Number	Required
12	Insurance_Expiry_Date	Expiry date for insurance	Date/Time	Required

### Booking Details Table

As the name indicates, this table consists of booking details of the service and comprises of all the important booking information such as car identification number, rate associated with the car\_id and pickup time and return time mapped to customer identification number. When the customer makes a transaction, a unique booking id will be generated as primary key for the table. Booking details acts like a receipt to the service.

Table #3 Booking\_Details

Serial No.	Fiel	Description	Data Type	Remarks
1	<b>Booking_ID (PK)</b>	Booking Identification number	Number	Required
2	<b>Customer_ID (FK)</b>	Customer Identification number	Varchar(6)	Foreign key references customer table
3	<b>Car_ID (FK)</b>	Car Identification number	Number	Foreign key references car details
4	Pickup_DateTime	Date and Time from of the service	Date/Time	Required
5	Return_DateTime	Date and Time till the end of the service	Date/Time	Required
6	Transaction_ID (FK)	Transaction Identification number	Number	Foreign key reference Payment table

### Payments

One of the critical table involving financials, the payment table consist of unique primary identification number as a transaction id, and identifies each transaction. The attribute card type is used to determine which type of card the customer uses to make a payment. Payment table is linked to the Booking table.

Table #4 Payments

Serial No.	Fiel	Description	Data Type	Remarks
1	<b>Transaction_ID</b>	Transaction identification number	Number	Primary Key
2	Card_Holder_Name	Billing name	Char(50)	Required
3	Card_Type	Type of the card	Char(10)	Required
4	Card_Number	Number of the car	Number	Required
5	Card_Expiry_Date	Expiry date of the card	Date/Time	Required
6	Zip (FK)	Zip Code	Number	Foreign key references Zip table
7	Amount	Charges for service	Currency	Required
8	Payment_DateTime	Date and Time associated with payment	Date/Time	Required

## Rates

Gives the tariffs for various options to rent a car, Rates are aligned with business strategy to provide best price for the customers and for the clients who provide their car on rent, the rates are provided on the daily basis and prices are strategized to provide competitive edge to the customers to rent a car and at the same time help car owners. Primary key is the combination of 2 entities Last modified date and time and car id.

**Table #5** Rates

Serial No.	Fiel	Description	Data Type	Remarks
1	<b>Car_ID (PK) (FK)</b>	Car identification number	Number	Primary key which is also a foreign key references car details
2	<b>Last_Modified_Date (PK)</b>	Denotes the date and time when the changes to the price was made	Date/Time	Primary key
3	Daily_Rate	Rate provided on daily basis	Currency	Required

## Availability

This table gives available options for the customers to choose from while booking a car. Availability table reflects product line and product depth of Pro Car, in general availability table gives information about the details of the car and the time slot and duration as to how long a particular car is available for.

**Table #6** Availability

Serial No.	Fiel	Description	Data Type	Remarks
1	<b>Slot_ID (PK)</b>	Slot Identification number	Number	Primary key
2	<b>Car_ID (FK)</b>	Car Identification Number	Number	Foreign key references Car Details
3	DateFrom	Date / Time service is available from	Date/Time	Required
4	DateTo	Date/ Time service is available to	Date/Time	Required
5	Availability	Status	Char(1)	Required

## Feedback

Long term relationship with the customer leads to success of the firm, feedback table is essential for the growth of business and to provide impeccable service quality. Feedback table consists of primary key which is foreign key referencing from booking table. This table helps capture all overall rating of the service and facility to provide additional suggestions and comments for the customers.

**Table #7** Feedback

Serial No.	Field	Description	Data Type	Remarks
1	<b>Booking_ID (PK) (FK)</b>	Booking Identification number	Number	Primary Key which is also a foreign key references Booking Table
2	DateTime	Date and Time	Date / Time	Required
3	Car_Rating	Rating of the car	Number	Required
4	Booking_Experience_Rating	Rating of the service	Number	Required
5	Price_Rating	Rating of the price	Number	Required
6	Overall_Rating	Overall rating of the experience	Number	Required
7	Additional_Comments	Suggestions and Comments	Char(50)	Required

## Car Owners

The fundamental concept of Pro Car business model is to facilitate Car Owners to rent their cars and provide an opportunity to the customers who want to rent a car. Pro Car bridges the needs, wants and the desires of the customers. Owners\_ID a four digit numeric code becomes a primary key.



Table #8 Car\_Owners

Serial No.	Fiel	Description	Data Type	Remarks
1	<b>Owner_ID (PK)</b>	Owner Identification type	Number	Primary Key
2	Owner_License_No	License Number	Number	Required
3	Owner_First_Name	Owner's First name	Char(20)	Required
4	Owner_Last_Name	Owner Last Name	Char(20)	Required
5	Owner_Addr_1	Owner Address Line 1	Char(20)	Required
6	Owner_Addr_2	Owner Address Line 2	Char(20)	Required
7	Zip (FK)	Zip code	Number	Foreign key references of Zip Table
8	Date_Added	Date/Time	Date/Time	Required

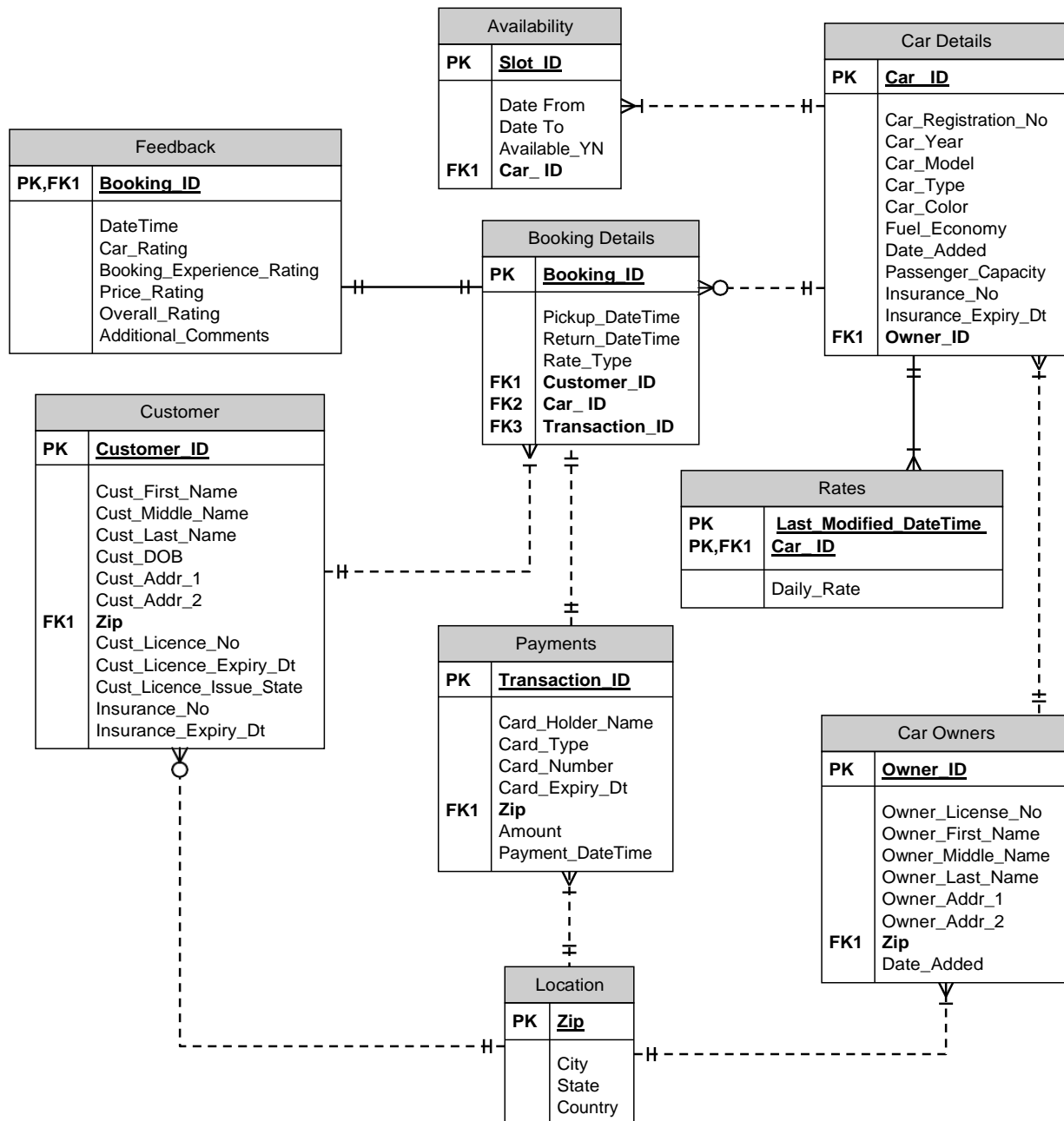
### Location

The location table is an essential table to track the city and state details for all the transaction and payment details. Zip code will be unique identification number of the table.

Table #9 Locations

Serial No.	Fiel	Description	Data Type	Remarks
1	<b>Zip (PK)</b>	Zip code of the location	Number	Primary key of the table
2	City	City	Char(10)	Required
3	State	State	Char(10)	Required
4	Country	Country	Char(10)	Required

### 3. Entity Relationship Diagram



## 4. Data Input Screen Printout

- Admin\_navigation
- Booking\_DetailsForm
- Car\_Details subform
- Car\_DetailsForm
- Car\_Owner
- CustAvailabilityForm
- Customer\_navigation
- CustomerForm
- FeedbackForm
- LocationForm
- Payments subform
- Main\_menu
- PaymentsForm
- RatesForm
- ReportForm

## Admin\_navigation



## Car\_Owner

ADMIN OPERATIONS

Car Owner	Car Owner			
Car Details				
Rates				
Customer				
Location				
Availability				

Owner ID	<input type="text" value="1"/>	Address Line 1	<input type="text" value="7520 Driveway Blvd"/>
Driving License No	<input type="text" value="123456789"/>	Address Line 2	<input type="text" value="Courts"/>
First Name	<input type="text" value="TOM"/>	Zip	<input type="text" value="75253"/>
Last Name	<input type="text" value="HANKS"/>	Added On	<input type="text" value="8/7/2015"/>

Record: 1 of 3 No Filter Search

## Car Details

ADMIN OPERATIONS

Car Owner

Car Details

Rates

Customer

Location

Availability

Car\_Details

Car ID

1

Fuel Economy

0

Registration No

645123456

Date Added

12/1/2009

Model

COROLLA

Passenger Capacity

5

Year

2009

Insurance No

4561239

Type

SEDAN

Insurance Expiry Date

12/12/2018

Color

WHITE

Owner ID

2

LOAD

DELETE

UNDO

EXIT

Record: 1 of 4 No Filter Search

## Rates

ADMIN OPERATIONS

Car Owner

Car Details

Rates

Customer

Location

Availability

Rates

Date

8/7/2015

Car\_ID

3

Daily\_Rate

\$90.00

LOAD

DELETE

UNDO

EXIT

Record: 1 of 2 No Filter Search

## Customer

ADMIN OPERATIONS

Car Owner

Car Details

Rates

Customer

Location

Availability

Customer

Customer\_ID

1

Cust\_License\_No

789546213

Cust\_First\_Name

SUCHETH

Cust\_License\_Expiry\_Date

12/12/2020

Cust\_Middle\_Name

RENUKA

Cust\_License\_Issue\_State

TEXAS

Cust\_Last\_Name

PRASAD

Insurance\_No

357159654

Cust\_Addr\_1

7825 NORTH STREET

Insurance\_Expiry\_Dt

12/12/2020

Cust\_Addr\_2

APT 1509

Zip

75080

LOAD

DELETE

UNDO

EXIT

Record: 1 of 1 No Filter Search

## Location

ADMIN OPERATIONS

Car Owner

Car Details

Rates

Customer

Location

Availability

Location

ZIP

75080

City

richardson

State

texas

Country

USA

LOAD

DELETE

UNDO

EXIT

Record: 1 of 5 No Filter Search

## Availability

ADMIN OPERATIONS

Car Owner  
Car Details  
Rates  
Customer  
Location  
Availability

Availability

Date\_from1/3/2015

Date\_to1/4/2015

Availability☒

Car2

LOAD

DELETE

UNDO

EXIT

Record: 1 of 2No FilterSearch

## Booking

PRO CAR RENTAL SERVICE

Booking  
Payment  
Feedback

Booking\_Details

Booking ID5

Pickup Date\_Time1/3/2015

Return Date\_Time1/4/2015

Customer ID1

Car ID2

Availability

Car_ID	Date_from	Date_to	Availability
2	1/3/2015	1/4/2015	<input checked="" type="checkbox"/>
4	1/5/2015	1/6/2015	<input checked="" type="checkbox"/>

LOAD

DELETE

UNDO

EXIT

Record: 1 of 1No FilterSearch

## Payment

# PRO CAR RENTAL SERVICE

Booking

Payment

Feedback

## Payments

Transaction\_ID

1

Card\_Holder\_Name

Nitesh Garg

card\_number

123456789

Card\_Type

Visa

Card\_Expiry\_Date

1/3/2018

Zip

75080

Amount

\$20.00

Payment\_Date

8/7/2015

Booking\_ID

5

LOAD

DELETE

UNDO

EXIT

Record: 1 of 1 | No Filter | Search

## Feedback

# PRO CAR RENTAL SERVICE

Booking

Payment

Feedback

## Feedback

Booking\_ID

5

Customer\_ID

1

DateTime

8/7/2015

Car\_Rating

5

Booking\_Experience\_Rating

5

Overall\_Rating

5

Additional\_Comments

Excellent

LOAD

DELETE

UNDO

EXIT

Record: 1 of 1 | No Filter | Search



## 5. Sample Reports

- Reports
- Car Details
- Car Owner
- Customer
- Payments
- Rates

### Reports

REPORTS

Availability

Car\_Details

Car\_Owner

Customer

Payments

Rates

Availability

Car_ID	Date_from	Date_to	Availability
1	1 /4 /2015	1 /5 /2015	<input checked="" type="checkbox"/>
2	1 /3 /2015	1 /4 /2015	<input checked="" type="checkbox"/>
3	1 /3 /2015	1 /3 /2015	<input checked="" type="checkbox"/>
4	1 /5 /2015	1 /6 /2015	<input checked="" type="checkbox"/>

### Car Details

REPORTS

Availability

Car\_Details

Car\_Owner

Customer

Payments

Rates

Car\_Details

Car_Registration_No	Car_Year	Car_Model	Car_Type	Car_Color	Fuel_Economy	Passenger_Capacity	Insurance_No	Insurance_Expiry_Date
645123456	2009	COROLLA	SEDAN	WHITE	12	5	4561239	12/12/2018
3581595	2008	FORD	SEDAN	BLACK	15	5	35621978	12/21/2019
465879465	2009	nissan	sedan	white	16	4	789546123	12/12/2015
978765415	0	Camry	Sedan	Black	17	4	214587965	12/12/2018

Friday, August 7, 2015

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## Car Owner

REPORTS

AvailabilityCar\_DetailsCar\_OwnerCustomerPaymentsRates

Car\_Owner

1se_No	Owner_First_Name	Owner_Last_Name	Owner_Addr_1	Owner_Addr_2	Zip
#####	TOM	HANKS	7520 Driveway Blvd	Courts	75253
#####	JIM	JHONSON	8794 MALABU	NORTH STREET	90209
#####	nitesh	garg	7825 MaCallum	dallas	75080
#####	Riya	Sen	8523 McCallum	Dallas	75080

Friday, August 7, 2015

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## Payments

REPORTS

AvailabilityCar\_DetailsCar\_OwnerCustomerPaymentsRates

Payments

Transaction_ID	Card_Holder_Name	Card_Type	Amount	Payment_Date/Time
1	Nitesh Garg	Visa	\$20.00	8/7/2015

Friday, August 7, 2015

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## Rates

REPORTS

AvailabilityCar\_DetailsCar\_OwnerCustomerPaymentsRates

Rates

Car_ID	Daily_Rate	Last_Modified_Date
3	\$90.00	8 / 7 / 2015
4	\$60.00	8 / 7 / 2015

Customer

REPORTS					
Availability	Car_Details	Car_Owner	Customer	Payments	Rates
Customer					
Customer_ID	Cust_First_Name	Cust_Last_Name	Cust_Addr	Cust_License_No	Insurance_No
1	SUCHETH	PRASAD	7825 NORTH STREET	789546213	357159654
2	Nitesh	Garg	75252 McCallum	8457965	58421555
3	Riya	Bebot	75253 McCallum	874599	3214458
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