



Database Project

Car Dealer Company

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Introduction

In this project, we designed and implemented a database for a car dealer company. The database boasts of many features such as an array of triggers, stored functions and procedures, in-built validation of data entries, etc. The database is capable of storing details about vehicles, their corresponding vendors, customers, their orders, employees along with their insurance details and all financial transactions made. The database also keeps track of an order from its generation until it is delivered. It also maintains details about EMI schemes if it is availed by the customer.

Triggers

1. **email_validate_customer** : validates the email id for customer
2. **phone_number_validate_customer**: validates phone number and formats it to the international format.
3. **phone_number_validate_insurance_company** : validates phone number and formats it to the international format.
4. **email_validate_vehicle_vendor** : validates the email id for a vendor.
5. **email_validate_policy_manager** : validates email id for policy managers.
6. **phone_number_validate_policy_manager** : validates phone number and formats it to the international format.
7. **has_offer_validations** : validates that the product of installment amount and number of installments are consistent with the vehicle price.
8. **validate_age** : verifies that the customer is at least 18 years old.
9. **emi_register_check** : checks if the EMI request for a vehicle is allowed.
10. **emi_availability_check** : checks if an EMI offer is available for the vehicle when the transaction is made under emi mode.
11. **change_order_status** : Changes the status to READY in the customer_order when the vehicle arrives the showroom, ie the vendor delivered the vehicle. (ON UPDATE)
12. **check_for_normal_payment** : Check if vehicle has arrived or not before payment (normal or emi).

13. **change_order_status2** : Changes the status to READY in the customer_order when the vehicle arrives the showroom, ie the vendor delivered the vehicle. (ON INSERT)
14. **change_order_status1** : Changes the status to IN_TRANSIT in the customer_order when order is given to vehicle vendor.
15. **change_order_status3** : Changes the status to DELIVERED when customer pays (emi or normal).

Functions and Procedures

1. **FUNCTION check_phone_num** : Runs a regular expression check to validate phone number and converts it to international format
2. **PROCEDURE check_email** : Runs a regular expression check to validate email address
3. **PROCEDURE insert_customer_payment** : Inserts a payment made by a customer into the transaction table and links it to customer payment table. If it an EMI payment, the order is verified with the emi registration table.
4. **PROCEDURE insert_salary_payment** : Inserts a salary transaction, and links it to the give_salary table. An error is raised if the salary paid is less than the base salary.
5. **PROCEDURE salary_summary** : Generates a summary of all salary paid to a given employee.
6. **PROCEDURE pending_emi_payments** : Lists out customers who are enrolled for EMI payment option but hadn't paid in the last month.
7. **FUNCTION inc_by_percent** : Increments the given parameter by a given percentage.
8. **PROCEDURE salary_increment** : Increment the salary of given employee by a given percentage.
9. **PROCEDURE salary_increment_all** : Increments the salaries of all employees by a given percentage.
10. **PROCEDURE salary_decrement** : Decrements the salary of a given employee by a given percentage.
11. **FUNCTION get_emi** : given a order_id gets emi_name if available
12. **PROCEDURE create_user** : given username, role, and password creates user and gives role.

13. **PROCEDURE INITEMPLOYEE** : creates users for employee with username as password. Creates user only if user does not exist already.
14. **PROCEDURE INIT_INSURANCE_AGENT**: creates users for insurance_company with appropriate privilege. Creates user only if user does not exist already.
15. **PROCEDURE INIT_VEHICLE_DEALER** : creates users for vehicle_vendor with appropriate privileges. Creates user only if user does not exist already.

VIEWS

1. **customer_order_view** (order id, customer name, ETA, status, vehicle id, vehicle name, order_date)
2. **customer_payment_view** (customer_name, transaction_id, emi_name, bank, account_number, payment_date, amount)
3. **employee_view** (id, name, address, salary, gender, age, department, manager)
4. **salary_payment_view** (transaction_id, employee_name, bank, account_number, payment_date, amount)
5. **vehicles_not_delivered** (shows orders which are not yet delivered)
6. **vehicle_emi_view** (combined view for vehicle and emi showing possible emi for each vehicle)

Command to backup the database:

```
mysqldump --databases car_dealer -u root -p --result-file=backup.sql
```

Roles

Role	Permission	Tables
DBA	ALL	%
Manager	SELECT, INSERT, UPDATE, DELETE	%
Accountant	SELECT, INSERT, UPDATE, DELETE	%transaction, give_salary, customer_payment, emi, registered
Broker	SELECT, INSERT, UPDATE	customer, customer_order, has_offer, has_insurance, vehicle, books, registered

	SELECT	insurance_company, vehicle_insurance, emi, customer_payment, customer_transaction
Insurance_agent	SELECT, INSERT, UPDATE, DELETE	insurance_company, vehicle_insurance, has_insurance
	SELECT	vehicle, customer, customer_order, books
Vendor_company_dealer	SELECT, INSERT, UPDATE, DELETE	vehicle, vehicle_vendor, vehicle_order
	SELECT	dealer_vendor_transaction

Description of tables

```
MariaDB [car_dealer]> show FULL TABLES;
```

Tables_in_car_dealer	Table_type
books	BASE TABLE
customer	BASE TABLE
customer_order	BASE TABLE
customer_order_view	VIEW
customer_payment	BASE TABLE
customer_payment_view	VIEW
customer_transaction	BASE TABLE
dealer_vendor_transaction	BASE TABLE
dependants	BASE TABLE
emi	BASE TABLE
employee	BASE TABLE
employee_view	VIEW
give_salary	BASE TABLE
has_insurance	BASE TABLE
has_offer	BASE TABLE
insurance_company	BASE TABLE
managed_by	BASE TABLE
policy_manager	BASE TABLE
registered	BASE TABLE
salary_payment_view	VIEW
salary_transaction	BASE TABLE
vehicle	BASE TABLE
vehicle_color	BASE TABLE
vehicle_emi_view	VIEW
vehicle_insurance	BASE TABLE
vehicle_vendor	BASE TABLE
vehicles_not_delivered	VIEW
vendor_order	BASE TABLE
vendor_order_customer_order	BASE TABLE

```
MariaDB [car_dealer]> describe books;
```

Field	Type	Null	Key	Default	Extra
vehicle_id	int(11)	NO	MUL	NULL	
customer_order_id	int(11)	NO	PRI	NULL	
color	varchar(100)	NO		NULL	

```
3 rows in set (0.00 sec)
```

```
MariaDB [car_dealer]> describe customer;
```

Field	Type	Null	Key	Default	Extra
id	int(11)	NO	PRI	NULL	auto_increment
name	varchar(255)	NO		NULL	
contact_number	varchar(20)	NO		NULL	
address	varchar(255)	NO		NULL	
email	varchar(255)	NO	UNI	NULL	
age	int(11) unsigned	NO		NULL	

```
6 rows in set (0.00 sec)
```

```
MariaDB [car_dealer]> describe customer_order;
```

Field	Type	Null	Key	Default	Extra
id	int(11)	NO	PRI	NULL	auto_increment
ETA	date	NO		NULL	
status	enum('PENDING','IN_TRANSIT','READY','DELIVERED')	NO		NULL	
date	date	NO		NULL	
customer_id	int(11)	NO	MUL	NULL	
sold_by	int(11)	YES	MUL	NULL	

```
MariaDB [car_dealer]> DESCRIBE customer_payment;
```

Field	Type	Null	Key	Default	Extra
transaction_id	varchar(50)	NO	PRI	NULL	
order_id	int(11)	NO	PRI	NULL	
type	enum('advance','emi','normal')	NO		normal	

```
3 rows in set (0.00 sec)
```

```
MariaDB [car_dealer]> DESCRIBE customer_transaction;
```

Field	Type	Null	Key	Default	Extra
transaction_id	varchar(50)	NO	PRI	NULL	
bank	varchar(100)	NO		NULL	
date	date	NO		NULL	
account_number	varchar(50)	NO		NULL	
amount	decimal(12,2) unsigned	NO		NULL	

```
5 rows in set (0.00 sec)
```

```
MariaDB [car_dealer]> DESCRIBE dealer_vendor_transaction;
```

Field	Type	Null	Key	Default	Extra
transaction_id	varchar(50)	NO	PRI	NULL	
vendor_order_id	int(11)	YES	MUL	NULL	
bank	varchar(100)	NO		NULL	
date	date	NO		NULL	
account_number	varchar(50)	NO		NULL	
amount	decimal(12,2) unsigned	NO		NULL	

```
6 rows in set (0.00 sec)
```


MariaDB [car_dealer]> DESCRIBE dependants;

Field	Type	Null	Key	Default	Extra
name	varchar(60)	NO	PRI	NULL	
age	int(11) unsigned	NO		NULL	
employee_id	int(11)	NO	PRI	NULL	

3 rows in set (0.00 sec)

MariaDB [car_dealer]> DESCRIBE emi;

Field	Type	Null	Key	Default	Extra
id	int(11)	NO	PRI	NULL	auto_increment
name	varchar(50)	NO		NULL	
no_of_installments	int(11) unsigned	NO		NULL	
installment_amount	decimal(12,2) unsigned	NO		NULL	

4 rows in set (0.00 sec)

MariaDB [car_dealer]> DESCRIBE employee;

Field	Type	Null	Key	Default	Extra
id	int(11)	NO	PRI	NULL	auto_increment
name	varchar(255)	NO		NULL	
address	varchar(511)	NO		NULL	
salary	decimal(12,2) unsigned	NO		NULL	
gender	enum('male','female','other')	YES		NULL	
age	int(11) unsigned	NO		NULL	
dept	enum('admin','broker','auxiliary','human_resource','manager','accountant')	NO		NULL	
policy_manager	int(11)	NO	MUL	NULL	
policy_join_date	date	NO		NULL	
policy_renewal_date	date	NO		NULL	

10 rows in set (0.00 sec)

MariaDB [car_dealer]> DESCRIBE give_salary;

Field	Type	Null	Key	Default	Extra
employee_id	int(11)	NO	PRI	NULL	
transaction_id	varchar(50)	NO	PRI	NULL	

2 rows in set (0.00 sec)

MariaDB [car_dealer]> DESCRIBE has_insurance;

Field	Type	Null	Key	Default	Extra
customer_order_id	int(11)	NO	PRI	NULL	
vehicle_insurance_id	int(11)	NO	PRI	NULL	
renewal_date	date	NO		NULL	

3 rows in set (0.00 sec)


```
MariaDB [car_dealer]> DESCRIBE has_offer;
```

Field	Type	Null	Key	Default	Extra
emi_id	int(11)	NO	PRI	NULL	
vehicle_id	int(11)	NO	PRI	NULL	

2 rows in set (0.00 sec)

```
MariaDB [car_dealer]> DESCRIBE insurance_company;
```

Field	Type	Null	Key	Default	Extra
id	int(11)	NO	PRI	NULL	auto_increment
name	varchar(60)	NO		NULL	
contact_number	varchar(20)	NO		NULL	

3 rows in set (0.00 sec)

```
MariaDB [car_dealer]> DESCRIBE managed_by;
```

Field	Type	Null	Key	Default	Extra
employee_id	int(11)	NO	PRI	NULL	
managed_by	int(11)	YES	MUL	NULL	

2 rows in set (0.00 sec)

```
MariaDB [car_dealer]> DESCRIBE policy_manager;
```

Field	Type	Null	Key	Default	Extra
id	int(11)	NO	PRI	NULL	auto_increment
name	varchar(255)	NO		NULL	
contact_number	varchar(20)	NO		NULL	
email	varchar(255)	NO	UNI	NULL	

4 rows in set (0.00 sec)

```
MariaDB [car_dealer]> DESCRIBE registered;
```

Field	Type	Null	Key	Default	Extra
customer_order_id	int(11)	NO	PRI	NULL	
emi_id	int(11)	NO	MUL	NULL	

2 rows in set (0.00 sec)

```
MariaDB [car_dealer]> DESCRIBE salary_transaction;
```

Field	Type	Null	Key	Default	Extra
transaction_id	varchar(50)	NO	PRI	NULL	
bank	varchar(100)	NO		NULL	
date	date	NO		NULL	
account_number	varchar(50)	NO		NULL	
amount	decimal(12,2) unsigned	NO		NULL	

5 rows in set (0.00 sec)

```
MariaDB [car_dealer]> DESCRIBE vehicle;
```

Field	Type	Null	Key	Default	Extra
id	int(11)	NO	PRI	NULL	auto_increment
name	varchar(255)	NO		NULL	
price	decimal(12,2) unsigned	NO		NULL	
mileage	decimal(5,2) unsigned	NO		NULL	
cylinder_vol	int(11) unsigned	NO		NULL	
transmission	int(11) unsigned	NO		5	
max_speed	int(11) unsigned	NO		NULL	
particulars	varchar(511)	YES		NULL	

```
8 rows in set (0.00 sec)
```

```
MariaDB [car_dealer]> DESCRIBE vehicle_color;
```

Field	Type	Null	Key	Default	Extra
id	int(11)	NO	MUL	NULL	
color	varchar(100)	NO		NULL	

```
2 rows in set (0.00 sec)
```

```
MariaDB [car_dealer]> DESCRIBE vehicle_insurance;
```

Field	Type	Null	Key	Default	Extra
id	int(11)	NO	PRI	NULL	
auto_increment					
policy_name	varchar(60)	NO		NULL	
coverage	enum('liability','collision','comprehensive','personal_injury','underinsured_protection')	NO			liability
insurance_company_id	int(11)	NO	MUL	NULL	

```
4 rows in set (0.00 sec)
```

```
MariaDB [car_dealer]> DESCRIBE vehicle_vendor;
```

Field	Type	Null	Key	Default	Extra
id	int(11)	NO	PRI	NULL	auto_increment
address	varchar(500)	NO		NULL	
date_of_join	date	NO		NULL	
name	varchar(255)	NO		NULL	
email	varchar(255)	NO	UNI	NULL	
comments	varchar(511)	YES		NULL	

```
6 rows in set (0.00 sec)
```

```
MariaDB [car_dealer]> DESCRIBE vendor_order;
```

Field	Type	Null	Key	Default	Extra
id	int(11)	NO	PRI	NULL	auto_increment
vendor_id	int(11)	NO	MUL	NULL	
vehicle_id	int(11)	NO	MUL	NULL	
status	enum('PENDING','DELIVERED','IN_TRANSIT')	NO		PENDING	
quantity	int(11) unsigned	NO		NULL	

```
5 rows in set (0.00 sec)
```

```
MariaDB [car_dealer]> DESCRIBE vendor_order_customer_order;
```

Field	Type	Null	Key	Default	Extra
vendor_order_id	int(11)	NO	PRI	NULL	
customer_order_id	int(11)	NO	PRI	NULL	

```
2 rows in set (0.00 sec)
```

Description of views

MariaDB [car_dealer]> DESCRIBE customer_order_view;

Field	Type	Null	Key	Default	Extra
order_id	int(11)	NO		0	
customer_name	varchar(255)	NO		NULL	
ETA	date	NO		NULL	
status	enum('PENDING','IN_TRANSIT','READY','DELIVERED')	NO		NULL	
vehicle_id	int(11)	NO		0	
vehicle_name	varchar(255)	NO		NULL	
order_date	date	NO		NULL	

7 rows in set (0.00 sec)

MariaDB [car_dealer]> DESCRIBE customer_payment_view;

Field	Type	Null	Key	Default	Extra
customer_name	varchar(255)	NO		NULL	
transaction_id	varchar(50)	NO		NULL	
emi_name	varchar(50)	YES		NULL	
bank	varchar(100)	NO		NULL	
account_number	varchar(50)	NO		NULL	
payment_date	date	NO		NULL	
amount	decimal(12,2) unsigned	NO		NULL	

7 rows in set (0.00 sec)

MariaDB [car_dealer]> DESCRIBE employee_view;

Field	Type	Null	Key	Default	Extra
ID	int(11)	NO		0	
Name	varchar(255)	NO		NULL	
Address	varchar(511)	NO		NULL	
salary	decimal(12,2) unsigned	NO		NULL	
gender	enum('male','female','other')	YES		NULL	
Age	int(11) unsigned	NO		NULL	
Department	enum('admin','broker','auxiliary','human_resource','manager','accountant')	NO		NULL	
Manager	varchar(255)	YES		NULL	

8 rows in set (0.00 sec)

MariaDB [car_dealer]> DESCRIBE salary_payment_view;

Field	Type	Null	Key	Default	Extra
transaction_id	varchar(50)	NO		NULL	
employee_name	varchar(255)	NO		NULL	
bank	varchar(100)	NO		NULL	
account_number	varchar(50)	NO		NULL	
payment_date	date	NO		NULL	
amount	decimal(12,2) unsigned	NO		NULL	

6 rows in set (0.00 sec)


```
MariaDB [car_dealer]> DESCRIBE vehicle_emi_view;
```

Field	Type	Null	Key	Default	Extra
id	int(11)	NO		0	
name	varchar(255)	NO		NULL	
price	decimal(12,2) unsigned	NO		NULL	
mileage	decimal(5,2) unsigned	NO		NULL	
cylinder_vol	int(11) unsigned	NO		NULL	
transmission	int(11) unsigned	NO		5	
max_speed	int(11) unsigned	NO		NULL	
particulars	varchar(511)	YES		NULL	
emi_name	varchar(50)	NO		NULL	
no_of_installments	int(11) unsigned	NO		NULL	
installment_amount	decimal(12,2) unsigned	NO		NULL	

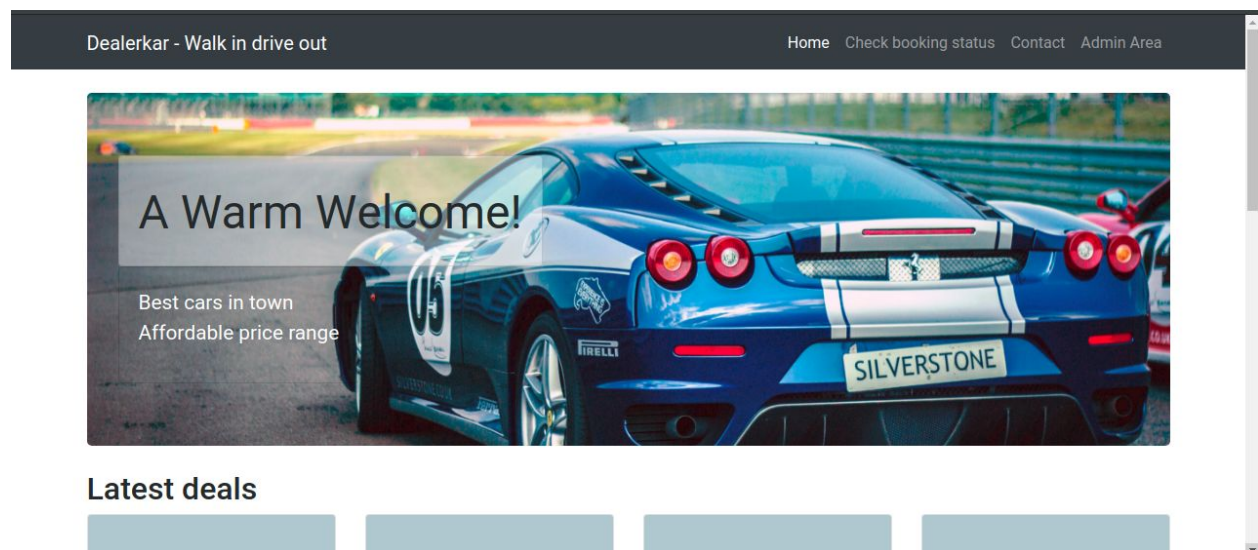
11 rows in set (0.00 sec)

```
MariaDB [car_dealer]> DESCRIBE vehicles_not_delivered;
```

Field	Type	Null	Key	Default	Extra
id	int(11)	NO		0	
name	varchar(255)	NO		NULL	
contact_number	varchar(20)	NO		NULL	
address	varchar(255)	NO		NULL	
email	varchar(255)	NO		NULL	
age	int(11) unsigned	NO		NULL	
ETA	date	NO		NULL	

7 rows in set (0.00 sec)


Front end views




Dealerkar - Walk in drive out

Home Check booking status Contact Admin Area


Latest deals




Toyota GT 86
₹ 11300000.00
[More](#)



Lykan Hypersport
₹ 12500000.00
[More](#)



Bugatti Veyron
₹ 115500000.00
Fastest Car in the world
[More](#)

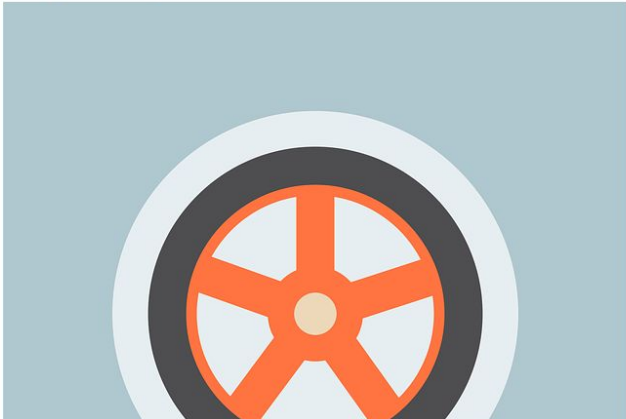


Nissan 350Z
₹ 9500000.00
[More](#)

Dealerkar - Walk in drive out

Home Check booking status Contact Admin Area

Bugatti Veyron



Max Speed	407
Cylinder vol	7993
Mileage	3.30
Transmission	6
Price	₹ 115500000.00

Available in : silver gray red

Dealerkar - Walk in drive out

Home Check booking status Contact Admin Area

Registered phone number:

+919947286188

Email id:

soorajkandathil@gmail.com

Submit

Date	ETA	Status
2018-01-12	2018-03-08	Your order is arriving. Please wait.
2017-06-22	2017-11-09	Your order was delivered. Thank you for shopping with us.

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Dealerkar - Walk in drive out

Home Check booking status Contact Admin Area

Dealerkar. The best deals in town

Welcome to Dealerkar. Book your car today!

Contact us:
3110 Main St Ste 300
Santa Monica, CA, 90405-5354
Email us:
sales@dealerkar.com

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Dealerkar

Login

Please login with your company id

Username

Shivang Shukla

Password

.....

Login

☐ Kepp me logged in

MySQL » Server » Database: car_dealer Logout

Database: car_dealer

[Alter database](#) [Database schema](#) [Privileges](#)

Tables and views

Search data in tables (23)

Table	Engine [?]	Collation [?]	Data Length [?]	Index Length [?]	Data Free [?]	Auto Increment [?]	Rows [?]	Comment [?]
<input type="checkbox"/> books	InnoDB	utf8mb4_general_ci	16,384	16,384	0		~ 6	
<input type="checkbox"/> customer	InnoDB	utf8mb4_general_ci	16,384	16,384	0	6	~ 5	
<input type="checkbox"/> customer_order	InnoDB	utf8mb4_general_ci	16,384	32,768	0	7	~ 6	

Selected (0)

Move to other database:

MySQL » Server » car_dealer » Select: vehicle

SELECT * FROM `vehicle` LIMIT 50

Modify	id	name	price	mileage	cylinder_vol	transmission	max_speed	particulars
<input type="checkbox"/> edit	1	Toyota GT 86	11300000.00	8.00	2000	5	310	<u>NULL</u>
<input type="checkbox"/> edit	2	Lykan Hypersport	12500000.00	7.80	3746	6	384	<u>NULL</u>
<input type="checkbox"/> edit	3	Bugatti Veyron	115500000.00	3.30	7993	6	407	Fastest Car in the world
<input type="checkbox"/> edit	4	Nissan 350Z	9500000.00	7.50	3500	5	240	<u>NULL</u>
<input type="checkbox"/> edit	5	Lamborghini Egoista	23000000.00	5.30	5200	5	325	<u>NULL</u>
<input type="checkbox"/> edit	6	Hennessey Venom GT	47200000.00	5.50	5000	7	418	<u>NULL</u>
<input type="checkbox"/> edit	7	Ferrari LaFerrari	97500000.00	3.80	6262	7	349	<u>NULL</u>
<input type="checkbox"/> edit	8	McLaren P1	86400000.00	3.50	3799	7	350	<u>NULL</u>

Whole result: ☐ 8 rows

[Import](#)

We can see that login as user with lower privilege gives limited access to database.