

# DBMS Project

# Vehicle Insurance company Database Design

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## Objective:

To design a Insurance database which can store all the data of customers ,their payment history ,claims and the successful payment of claims by the Insurance company.This project is aimed to give Industry experience in real life database designing process.

## Project Scope and purpose:

This can be actually converted into an actual mysql code and can be deployed onto a server.It can efficiently manage multiple users and can store data with full reliability.It can be implemented at a company and can be converted into a startup.

## Conceptual Model:

### Design Rules:

To design our car insurance database conceptual data model we first needed to decide what characteristics underpin the model under investigation. As a group we decided on various rules that need to be implemented in order for the model to be consistent and precise.

The Tables are written with format =teamnum+tablename

Attributes are written with format =teamnum\_Tablenumber\_attribute

Primary keys are different for all the data in the table.

### Assumptions :

Customers must have a permanent international driving licence.

The online insurance has no physical high-street presence.

The online insurance is given to customers over 18 years of age.

The online insurance needs some driving history of the customer.

The online insurance needs to know the type of car customer drives.

The online insurance needs to know about the insurance history of the customer.

## Entities:

<b>G9_CUSTOMER</b>	Records all the personal details about the customer
<b>G9_APPLICATION</b>	Records details of the insurance cover requested by Customer
<b>G9_QUOTE</b>	Records details of customer potential cost of the insurance product
<b>G9_INSURANCE POLICY</b>	Records details of Insurance agreement
<b>G9_PREMIUM</b>	Records details of customer payments
<b>G9_VEHICLE</b>	Records details of Vehicle model, cost and registration
<b>G9_CLAIMS</b>	Records details of customer claims in case of an incident
<b>G9_SETTLEMENTS</b>	Records details of settlement made on claims
<b>G9_STAFF</b>	Records details of employees
<b>G9_DEPARTMENT</b>	Records details of the various departments
<b>G9_OFFICE</b>	Records details of different office locations
<b>VEHICLE INSURANCE</b>	Records details of vehicle insurance cover
<b>DEPARTMENT</b>	
<b>G9_RECEIPT</b>	Records details of Receipt of Premiums
<b>G9_COMPANY</b>	Details of the Insurance organization giving the insurance cover

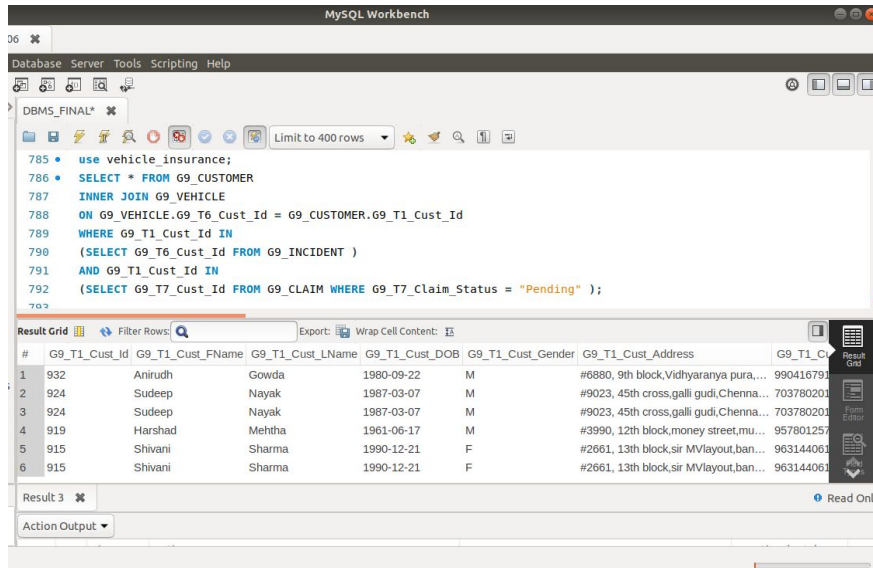
The diagram illustrates the following entities and their attributes:

- G9\_INCIDENT**: G9\_T14\_INCIDENT\_ID INT (PK), G9\_T14\_INCIDENT\_DATE DATE, G9\_T14\_INCIDENT\_INSPECTOR VARCHAR(20), G9\_T14\_INCIDENT\_COST INT, G9\_T14\_INCIDENT\_TYPE CHAR(10), G9\_T15\_INCIDENT\_DESCRIPTION VARCHAR(100), G9\_T1\_CUST\_ID INT (FK).
- G9\_PREMIUM\_PAYMENT**: G9\_T5\_PREMIUM\_PAYMENT\_ID INT (PK), G9\_T5\_POLICY\_NUMBER VARCHAR(20), G9\_T5\_PREMIUM\_PAYMENT\_SCHEDULE DATE, G9\_T5\_PREMIUM\_PAYMENT\_AMOUNT INT, G9\_T5\_RECEIPT\_ID VARCHAR(20), G9\_T1\_CUST\_ID INT (FK).
- G9\_CUSTOMER**: G9\_T1\_CUST\_ID INT (PK), G9\_T1\_CUST\_FNAME VARCHAR(10), G9\_T1\_CUST\_LNAME VARCHAR(10).
- G9\_CLAIM**: G9\_T7\_CLAIM\_ID INT (PK), G9\_T7\_AGREEMENT\_ID INT (FK), G9\_T7\_CLAIM\_AMOUNT INT, G9\_T7\_INCIDENT\_ID INT (FK), G9\_T7\_DAMAGE\_TYPE VARCHAR(20), G9\_T7\_DATE\_OF\_CLAIM DATE, G9\_T7\_CLAIM\_STATUS CHAR(10), G9\_T1\_CUST\_ID INT (FK).
- G9\_VEHICLE**: G9\_T6\_VEHICLE\_ID INT (PK), G9\_T6\_VEHICLE\_REGISTRATION\_NUMBER VARCHAR(20), G9\_T6\_VEHICLE\_VALUE INT, G9\_T6\_VEHICLE\_TYPE VARCHAR(20).
- G9\_RECEPT**: G9\_T17\_RECEIPT\_ID INT (PK), G9\_T17\_COST INT, G9\_T17\_TIME TIME, G9\_T17\_PREMIUM\_PAYMENT\_ID INT (FK), G9\_T1\_CUST\_ID INT (FK).
- G9\_INSURANCE\_POLICY\_COVERAGE**: G9\_T16\_COVERAGE\_ID INT (PK), G9\_T16\_APPLICATION\_ID VARCHAR(12), G9\_T16\_COMPANY\_NAME VARCHAR(15), G9\_T16\_CUSTOMER\_ID VARCHAR(10), G9\_T15\_COVERAGE\_ID INT (FK), G9\_T15\_COVERAGE\_AMOUNT INT, G9\_T15\_COVERAGE\_TYPE CHAR(10), G9\_T15\_COVERAGE\_LEVEL CHAR(13), G9\_T15\_COVERAGE\_DESCRIPTION VARCHAR(100), G9\_T15\_COVERAGE\_TERMS VARCHAR(20), G9\_T15\_COMPANY\_NAME VARCHAR(20).
- G9\_OFFICE**: G9\_T16\_OFFICE\_NAME VARCHAR(20), G9\_T16\_OFFICE\_LEADER VARCHAR(20), G9\_T16\_CONTACT\_INFORMATION VARCHAR(20), G9\_T16\_ADDRESS VARCHAR(20), G9\_T16\_ADMIN\_COST INT, G9\_T16\_STAFF VARCHAR(20), G9\_T16\_DEPARTMENT\_ID VARCHAR(20), G9\_T16\_COMPANY\_NAME VARCHAR(20).
- G9\_PRODUCT**: G9\_T19\_PRODUCT\_NUMBER VARCHAR(12), G9\_T19\_COMPANY\_NAME VARCHAR(15), G9\_T19\_PRODUCT\_TYPE VARCHAR(15), G9\_T19\_PRODUCT\_PRICE VARCHAR(20).
- G9\_QUOTE**: G9\_T3\_QUOTE\_ID INT (PK), G9\_T3\_ISSUE\_DATE DATE, G9\_T3\_VALID\_FROM DATE, G9\_T3\_VALID\_TO DATE, G9\_T3\_DESCRIPTION VARCHAR(20), G9\_T3\_COVERAGE\_ID INT (FK), G9\_T3\_APPLICATION\_ID INT (FK), G9\_T3\_CUST\_ID INT (FK), G9\_T3\_QUOTE\_ID2 INT (FK), G9\_T3\_APPLICATION\_ID2 INT (FK), G9\_T3\_CUST\_ID2 INT (FK).
- G9\_POLICY\_RENEWABLE**: G9\_T13\_POLICY\_RENEWABLE\_ID INT (PK), G9\_T13\_DATE\_OF\_RENEWAL DATE, G9\_T13\_TYPE\_OF\_RENEWAL CHAR(15), G9\_T13\_AGREEMENT\_ID INT (FK), G9\_T13\_APPLICATION\_ID INT (FK), G9\_T13\_CUST\_ID INT (FK).
- G9\_STAFF**: G9\_T10\_STAFF\_ID INT (PK), G9\_T10\_STAFF\_FNAME VARCHAR(10), G9\_T10\_STAFF\_LNAME VARCHAR(10), G9\_T10\_STAFF\_ADDRESS VARCHAR(20), G9\_T10\_STAFF\_CONTACT INT, G9\_T10\_STAFF\_GENDER CHAR(2), G9\_T10\_STAFF\_MARITAL\_STATUS CHAR(10).
- G9\_INSURANCE\_POLICY**: G9\_T4\_AGREEMENT\_ID INT (PK), G9\_T4\_DEPARTMENT\_NAME VARCHAR(20), G9\_T4\_POLICY\_NUMBER VARCHAR(20), G9\_T4\_START\_DATE DATE, G9\_T4\_EXPIRY\_DATE DATE, G9\_T4\_APPLICATION\_ID INT (FK), G9\_T4\_CUST\_ID INT (FK).
- G9\_DEPARTMENT**: G9\_T11\_DEPARTMENT\_ID VARCHAR(10), G9\_T11\_DEPARTMENT\_NAME VARCHAR(20), G9\_T11\_DEPARTMENT\_LEADER VARCHAR(20), G9\_T11\_OFFICE VARCHAR(20), G9\_T11\_CONTACT\_INFORMATION VARCHAR(20), G9\_T11\_COMPANY\_NAME VARCHAR(20).
- G9\_INSURANCE\_COMPANY**: G9\_T9\_COMPANY\_NAME VARCHAR(20), G9\_T9\_COMPANY\_ADDRESS VARCHAR(20), G9\_T9\_COMPANY\_CONTACT\_NUMBER INT, G9\_T9\_COMPANY\_FAX INT, G9\_T9\_COMPANY\_EMAIL VARCHAR(20), G9\_T9\_COMPANY\_WEBSITE VARCHAR(20), G9\_T9\_COMPANY\_LOCATION VARCHAR(20), G9\_T9\_COMPANY\_DEPARTMENT\_NAME VARCHAR(20), G9\_T13\_COMPANY\_OFFICE\_NAME VARCHAR(20).
- G9\_CLAIM\_SETTLEMENT**: G9\_T8\_CLAIM\_SETTLEMENT\_ID INT (PK), G9\_T8\_VEHICLE\_ID INT (FK), G9\_T8\_DATE\_SETTLED DATE, G9\_T8\_AMOUNT\_PAID INT, G9\_T8\_COVERAGE\_ID VARCHAR(20), G9\_CLAIM\_G9\_T7\_CLAIM\_ID INT (FK), G9\_CLAIM\_G9\_T1\_CUST\_ID INT (FK).
- G9\_APPLICATION**: G9\_T2\_APPLICATION\_ID INT (PK), G9\_T2\_VEHICLE\_ID INT (FK), G9\_T2\_APPLICATION\_STATUS CHAR(10), G9\_T2\_COVERAGE VARCHAR(20), G9\_T2\_CUST\_ID INT (FK), G9\_QUOTE\_G9\_T3\_QUOTE\_ID INT (FK), G9\_QUOTE\_G9\_T3\_APPLICATION\_ID INT (FK), G9\_QUOTE\_G9\_T3\_CUST\_ID INT (FK), G9\_QUOTE\_G9\_T3\_QUOTE\_ID2 INT (FK), G9\_QUOTE\_G9\_T3\_APPLICATION\_ID2 INT (FK), G9\_QUOTE\_G9\_T3\_CUST\_ID2 INT (FK).
- G9\_COVERAGE**: G9\_T15\_COVERAGE\_ID INT (PK), G9\_T15\_COVERAGE\_AMOUNT INT, G9\_T15\_COVERAGE\_TYPE CHAR(10), G9\_T15\_COVERAGE\_LEVEL CHAR(13), G9\_T15\_COVERAGE\_DESCRIPTION VARCHAR(100), G9\_T15\_COVERAGE\_TERMS VARCHAR(20), G9\_T15\_COMPANY\_NAME VARCHAR(20).
- G9\_VEHICLE\_SERVICE**: G9\_T12\_VEHICLE\_SERVICE\_ID VARCHAR(20), G9\_T12\_CUST\_ID INT (FK), G9\_T12\_DEPARTMENT\_NAME CHAR(20), G9\_T12\_VEHICLE\_SERVICE\_ADDRESS VARCHAR(20), G9\_T12\_VEHICLE\_SERVICE\_CONTACT VARCHAR(20), G9\_T12\_VEHICLE\_SERVICE\_INCHARGE CHAR(20), G9\_T12\_VEHICLE\_SERVICE\_TYPE VARCHAR(20), G9\_T6\_VEHICLE\_ID INT (FK).

Refer to the code -open [here](#)

## Queries and their outputs:

1. Retrieve Customer and Vehicle details who has been involved in an incident and claim status is pending.



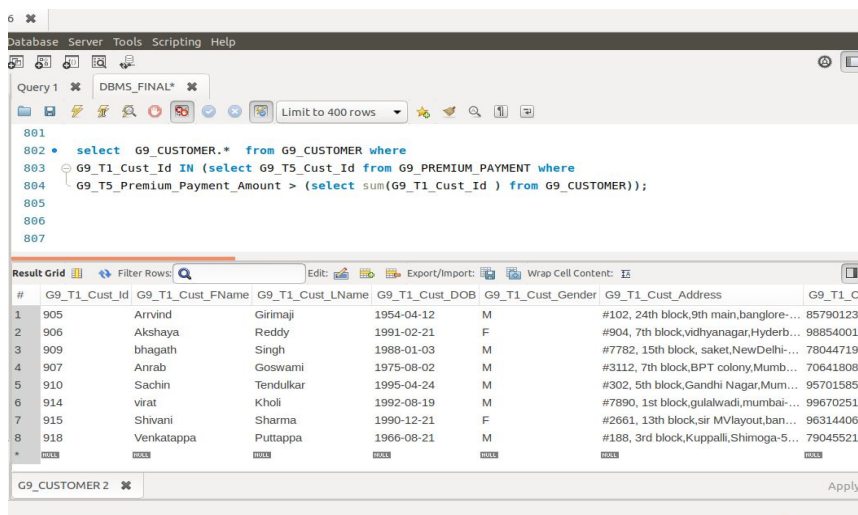
The screenshot shows the MySQL Workbench interface. The query editor contains the following SQL query:

```
785 • use vehicle_insurance;
786 • SELECT * FROM G9_CUSTOMER
787 INNER JOIN G9_VEHICLE
788 ON G9_VEHICLE.G9_T6_Cust_Id = G9_CUSTOMER.G9_T1_Cust_Id
789 WHERE G9_T1_Cust_Id IN
790 (SELECT G9_T6_Cust_Id FROM G9_INCIDENT )
791 AND G9_T1_Cust_Id IN
792 (SELECT G9_T7_Cust_Id FROM G9_CLAIM WHERE G9_T7_Claim_Status = "Pending" );
```

The result grid displays the following data:

#	G9_T1_Cust_Id	G9_T1_Cust_FName	G9_T1_Cust_LName	G9_T1_Cust_DOB	G9_T1_Cust_Gender	G9_T1_Cust_Address	G9_T1_Cust_Contact
1	932	Anirudh	Gowda	1980-09-22	M	#6880, 9th block,Vidhyaranya pura,...	990416791
2	924	Sudeep	Nayak	1987-03-07	M	#9023, 45th cross,galli gudi,Chenna...	703780201
3	924	Sudeep	Nayak	1987-03-07	M	#9023, 45th cross,galli gudi,Chenna...	703780201
4	919	Harshad	Mehtha	1961-06-17	M	#3990, 12th block,money street,mu...	957801257
5	915	Shivani	Sharma	1990-12-21	F	#2661, 13th block,sir MVlayout,ban...	963144061
6	915	Shivani	Sharma	1990-12-21	F	#2661, 13th block,sir MVlayout,ban...	963144061

2. Retrieve customer details who has a premium payment amount greater than the sum of all the customerIds in the database.



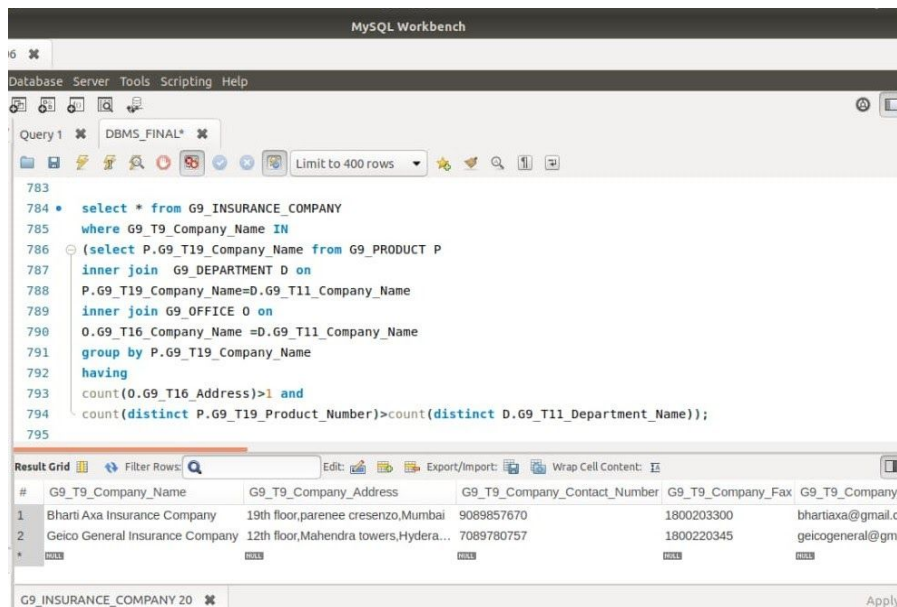
The screenshot shows the MySQL Workbench interface. The query editor contains the following SQL query:

```
881
882 • select G9_CUSTOMER.* from G9_CUSTOMER where
883 G9_T1_Cust_Id IN (select G9_T5_Cust_Id from G9_PREMIUM_PAYMENT where
884 G9_T5_Premium_Payment_Amount > (select sum(G9_T1_Cust_Id ) from G9_CUSTOMER));
```

The result grid displays the following data:

#	G9_T1_Cust_Id	G9_T1_Cust_FName	G9_T1_Cust_LName	G9_T1_Cust_DOB	G9_T1_Cust_Gender	G9_T1_Cust_Address	G9_T1_Cust_Contact
1	905	Arvind	Girimaji	1954-04-12	M	#102, 24th block,9th main,banglore...	857901239
2	906	Akshaya	Reddy	1991-02-21	F	#904, 7th block,vidhyanagar,Hyderb...	988540012
3	909	bhagath	Singh	1988-01-03	M	#7782, 15th block, saket,NewDelhi...	780447190
4	907	Anrab	Goswami	1975-08-02	M	#3112, 7th block,BPT colony,Mumb...	706418082
5	910	Sachin	Tendulkar	1995-04-24	M	#302, 5th block,Gandhi Nagar,Mum...	957015855
6	914	virat	Kholi	1992-08-19	M	#7890, 1st block,gulabwadi,mumbai...	996702511
7	915	Shivani	Sharma	1990-12-21	F	#2661, 13th block,sir MVlayout,ban...	963144061
8	918	Venkatappa	Puttappa	1966-08-21	M	#188, 3rd block,Kuppalli,Shimoga-5...	790455210

3. Retrieve Company details whose number of products is greater than departments, where the departments are located in more than one location.



The screenshot shows the MySQL Workbench interface. The SQL editor contains the following query:

```

783
784 • select * from G9_INSURANCE_COMPANY
785 where G9_T9_Company_Name IN
786 (select P.G9_T19_Company_Name from G9_PRODUCT P
787 inner join G9_DEPARTMENT D on
788 P.G9_T19_Company_Name=D.G9_T11_Company_Name
789 inner join G9_OFFICE O on
790 O.G9_T16_Company_Name =D.G9_T11_Company_Name
791 group by P.G9_T19_Company_Name
792 having
793 count(O.G9_T16_Address)>1 and
794 count(distinct P.G9_T19_Product_Number)>count(distinct D.G9_T11_Department_Name));
795

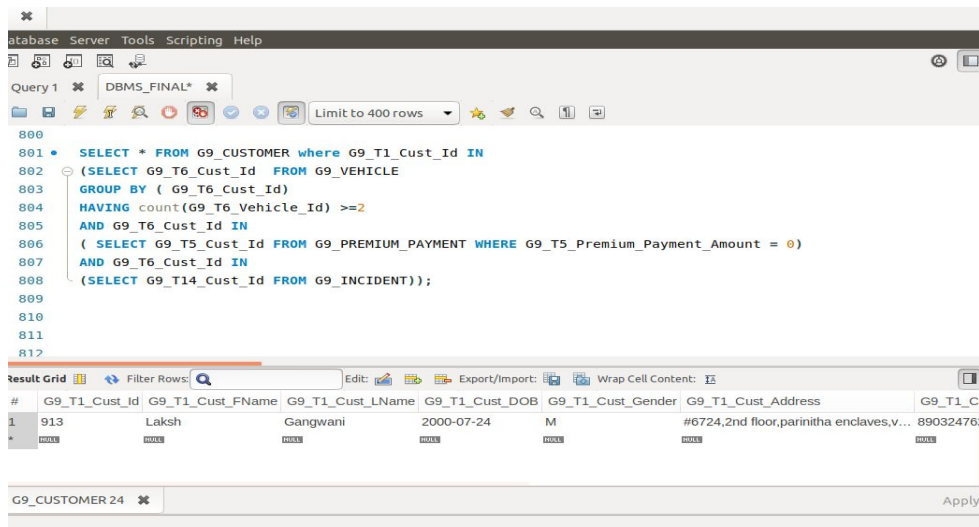
```

The Results Grid shows the following data:

#	G9_T9_Company_Name	G9_T9_Company_Address	G9_T9_Company_Contact_Number	G9_T9_Company_Fax	G9_T9_Company_Email
1	Bharti Axa Insurance Company	19th floor,parenee cresenzo,Mumbai	9089857670	1800203300	bharti.axa@gmail.com
2	Geico General Insurance Company	12th floor,Mahendra towers,Hydera...	7089780757	1800220345	geicogeneral@gmail.com

The status bar at the bottom indicates 'G9\_INSURANCE\_COMPANY 20' and an 'Apply' button.

4. Select Customers who have more than one Vehicle, where the premium for one of the Vehicles is not paid and it is involved in accident



The screenshot shows the MySQL Workbench interface. The SQL editor contains the following query:

```

800
801 • SELECT * FROM G9_CUSTOMER where G9_T1_Cust_Id IN
802 (SELECT G9_T6_Cust_Id FROM G9_VEHICLE
803 GROUP BY ( G9_T6_Cust_Id)
804 HAVING count(G9_T6_Vehicle_Id) >=2
805 AND G9_T6_Cust_Id IN
806 ( SELECT G9_T5_Cust_Id FROM G9_PREMIUM_PAYMENT WHERE G9_T5_Premium_Payment_Amount = 0)
807 AND G9_T6_Cust_Id IN
808 (SELECT G9_T14_Cust_Id FROM G9_INCIDENT));
809
810
811
812

```

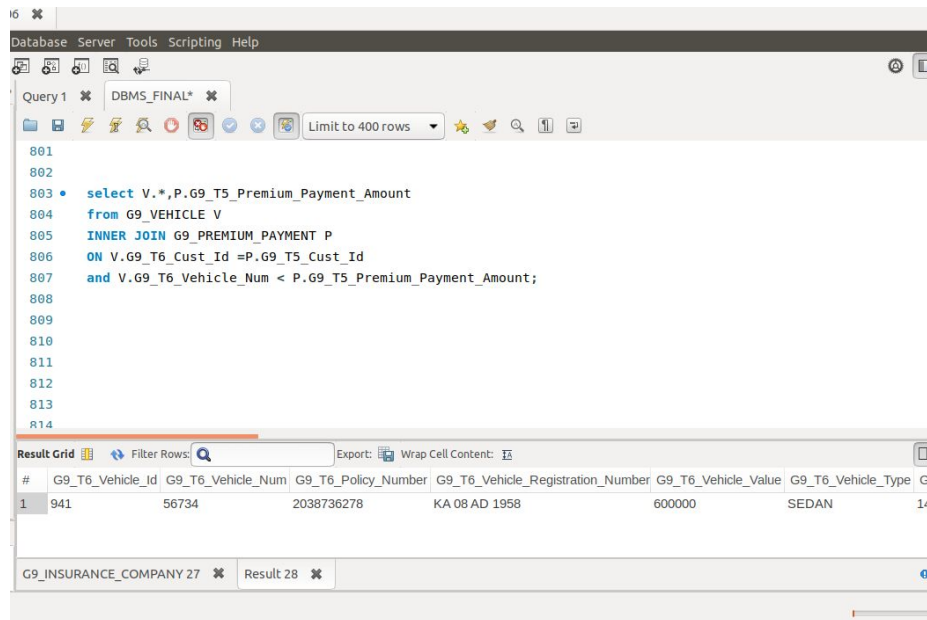
The Results Grid shows the following data:

#	G9_T1_Cust_Id	G9_T1_Cust_FName	G9_T1_Cust_LName	G9_T1_Cust_DOB	G9_T1_Cust_Gender	G9_T1_Cust_Address	G9_T1_Cust_Phone
1	913	Laksh	Gangwani	2000-07-24	M	#6724,2nd floor,parinitha enclaves,v...	890324762

The status bar at the bottom indicates 'G9\_CUSTOMER 24' and an 'Apply' button.



5. Select all vehicles which have premium more than its vehicle number.



The screenshot shows a database query editor with a menu bar (Database, Server, Tools, Scripting, Help) and a toolbar. The query editor displays a SQL query for 'Query 1' (DBMS\_FINAL\*). The query is as follows:

```

801
802
803 • select V.*,P.G9_T5_Premium_Payment_Amount
804 from G9_VEHICLE V
805 INNER JOIN G9_PREMIUM_PAYMENT P
806 ON V.G9_T6_Cust_Id =P.G9_T5_Cust_Id
807 and V.G9_T6_Vehicle_Num < P.G9_T5_Premium_Payment_Amount;
808
809
810
811
812
813
814

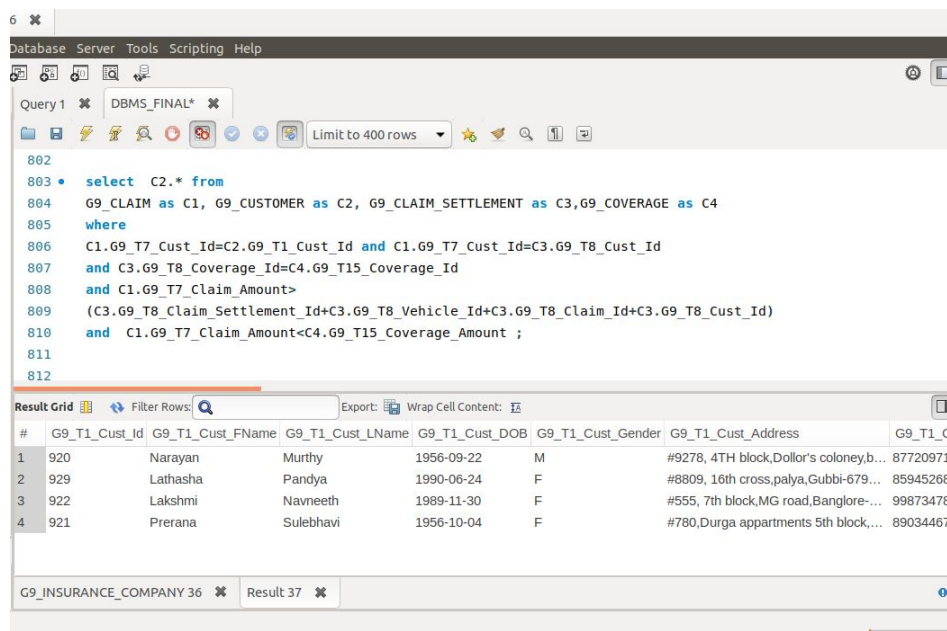
```

The results are displayed in a 'Result Grid' below the query editor. The grid has columns: #, G9\_T6\_Vehicle\_Id, G9\_T6\_Vehicle\_Num, G9\_T6\_Policy\_Number, G9\_T6\_Vehicle\_Registration\_Number, G9\_T6\_Vehicle\_Value, G9\_T6\_Vehicle\_Type, and G9\_T6\_Vehicle\_Registration\_Number. The first row of results is:

#	G9_T6_Vehicle_Id	G9_T6_Vehicle_Num	G9_T6_Policy_Number	G9_T6_Vehicle_Registration_Number	G9_T6_Vehicle_Value	G9_T6_Vehicle_Type	G9_T6_Vehicle_Registration_Number
1	941	56734	2038736278	KA 08 AD 1958	600000	SEDAN	148

The status bar at the bottom indicates 'G9\_INSURANCE\_COMPANY 27' and 'Result 28'.

6. Retrieve Customer details whose Claim Amount is less than Coverage Amount and Claim Amount is greater than Sum of (CLAIM\_SETTLEMENT\_ID, VEHICLE\_ID, CLAIM\_ID, CUST\_ID )



The screenshot shows a database query editor with a menu bar (Database, Server, Tools, Scripting, Help) and a toolbar. The query editor displays a SQL query for 'Query 1' (DBMS\_FINAL\*). The query is as follows:

```

802
803 • select C2.* from
804 G9_CLAIM as C1, G9_CUSTOMER as C2, G9_CLAIM_SETTLEMENT as C3, G9_COVERAGE as C4
805 where
806 C1.G9_T7_Cust_Id=C2.G9_T1_Cust_Id and C1.G9_T7_Cust_Id=C3.G9_T8_Cust_Id
807 and C3.G9_T8_Coverage_Id=C4.G9_T15_Coverage_Id
808 and C1.G9_T7_Claim_Amount>
809 (C3.G9_T8_Claim_Settlement_Id+C3.G9_T8_Vehicle_Id+C3.G9_T8_Claim_Id+C3.G9_T8_Cust_Id)
810 and C1.G9_T7_Claim_Amount<C4.G9_T15_Coverage_Amount ;
811
812

```

The results are displayed in a 'Result Grid' below the query editor. The grid has columns: #, G9\_T1\_Cust\_Id, G9\_T1\_Cust\_FName, G9\_T1\_Cust\_LName, G9\_T1\_Cust\_DOB, G9\_T1\_Cust\_Gender, G9\_T1\_Cust\_Address, and G9\_T1\_Cust\_Contact\_No. The first four rows of results are:

#	G9_T1_Cust_Id	G9_T1_Cust_FName	G9_T1_Cust_LName	G9_T1_Cust_DOB	G9_T1_Cust_Gender	G9_T1_Cust_Address	G9_T1_Cust_Contact_No
1	920	Narayan	Murthy	1956-09-22	M	#9278, 4TH block,Dollar's colony,b...	877209717
2	929	Lathasha	Pandya	1990-06-24	F	#8809, 16th cross,palya,Gubbi-679...	859452689
3	922	Lakshmi	Navneeth	1989-11-30	F	#555, 7th block,MG road,Banglore-...	998734789
4	921	Prerana	Sulebhavi	1956-10-04	F	#780,Durga appartments 5th block,...	890344672

The status bar at the bottom indicates 'G9\_INSURANCE\_COMPANY 36' and 'Result 37'.

CODE FOR QUERIES [HERE](#)

## Contributions By Team Members:

Asutosh Ghanto-LDM/PDM

Ankitha S Madanbhavi - CMD/PDM

Akshaya -PDM/LDM

Harshitha-CDM/PDM

Laksh-PDM

Leena-PDM

Avinash-PDM

Sujeet-PDM      Pratyush-PDM

## Skills Learnt Through This Project:

We learnt how to work in a group to complete any work.

We learnt MySQL thoroughly and now we can make a custom database and insert values in it from scratch.

We learnt to make ER diagrams and also to make forward engineering to generate sql code.

We learnt about the theory of RDBMS databases now we can work with any RDBMS database with ease.

