SQL Lab-3

1. **Create a table vehicles with columns vehicleid int, year int,make varchar(100).**
   Make vehicleid as the primary key and the columns year and make not null.

   mysql>create table vehicle(vehicleid int PRIMARY KEY,
          -> YEAR INT NOT NULL,
          -> MKE VARCHAR(100) NOT NULL);

```
mysql> create table vehicle(vehicleid int PRIMARY KEY,
    -> YEAR INT NOT NULL,
    -> MAKE VARCHAR(100) NOT NULL);
Query OK, 0 rows affected (0.01 sec)

mysql> DESC VEHICLE;
+-----------+--------------+------+-----+---------+-------+
| Field     | Type         | Null | Key | Default | Extra |
+-----------+--------------+------+-----+---------+-------+
| vehicleid | int          | NO   | PRI | NULL    |       |
| YEAR      | int          | NO   |     | NULL    |       |
| MAKE      | varchar(100) | NO   |     | NULL    |       |
+-----------+--------------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

2. **Add 3 new columns to the vehicles table**
   a. **model varchar(100) not null**
   b. **color varchar(50)**
   c. **note varchar(255)**

   mysql>ALTER TABLE VEHICLE
      -> ADD COLUMN MODEL varchar(100) NOT NULL, ADD COLOR varchar(50), ADD NOTE varchar(255);

```
mysql> ALTER TABLE VEHICLE
    -> ADD COLUMN MODEL varchar(100) NOT NULL, ADD COLOR varchar(50), ADD NOTE varchar(255);
Query OK, 0 rows affected (0.02 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc vehicle;
+-----------+--------------+------+-----+---------+-------+
| Field     | Type         | Null | Key | Default | Extra |
+-----------+--------------+------+-----+---------+-------+
| vehicleid | int          | NO   | PRI | NULL    |       |
| YEAR      | int          | NO   |     | NULL    |       |
| MAKE      | varchar(100) | NO   |     | NULL    |       |
| MODEL     | varchar(100) | NO   |     | NULL    |       |
| COLOR     | varchar(50)  | YES  |     | NULL    |       |
| NOTE      | varchar(255) | YES  |     | NULL    |       |
+-----------+--------------+------+-----+---------+-------+
6 rows in set (0.00 sec)
```

3. **In the vehicles table, change the note column a NOT NULL column with a maximum of 100 characters.**

   mysql> ALTER TABLE VEHICLE
     -> MODIFY NOTE varchar(100) NOT NULL;

```
mysql> ALTER TABLE VEHICLE
    -> MODIFY NOTE varchar(100) NOT NULL;
Query OK, 0 rows affected (0.03 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> DESC VEHICLE;
+-----------+--------------+------+-----+---------+-------+
| Field     | Type         | Null | Key | Default | Extra |
+-----------+--------------+------+-----+---------+-------+
| vehicleid | int          | NO   | PRI | NULL    |       |
| YEAR      | int          | NO   |     | NULL    |       |
| MAKE      | varchar(100) | NO   |     | NULL    |       |
| MODEL     | varchar(100) | NO   |     | NULL    |       |
| COLOR     | varchar(50)  | YES  |     | NULL    |       |
| NOTE      | varchar(100) | NO   |     | NULL    |       |
+-----------+--------------+------+-----+---------+-------+
6 rows in set (0.00 sec)
```

4. **4. In the vehicles table, modify the data type of the year column from INT to SMALLINT**

   mysql>ALTER TABLE VEHICLE
     -> MODIFY YEAR smallint;

```
mysql> ALTER TABLE VEHICLE
    -> MODIFY YEAR smallint;
Query OK, 0 rows affected (0.14 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> DESC VEHICLE;
+-----------+--------------+------+-----+---------+-------+
| Field     | Type         | Null | Key | Default | Extra |
+-----------+--------------+------+-----+---------+-------+
| vehicleid | int          | NO   | PRI | NULL    |       |
| YEAR      | smallint     | YES  |     | NULL    |       |
| MAKE      | varchar(100) | NO   |     | NULL    |       |
| MODEL     | varchar(100) | NO   |     | NULL    |       |
| COLOR     | varchar(50)  | YES  |     | NULL    |       |
| NOTE      | varchar(100) | NO   |     | NULL    |       |
+-----------+--------------+------+-----+---------+-------+
6 rows in set (0.00 sec)
```

5. **In the vehicles table, modify the color column by setting the maximum length to 20, removing the NOT NULL constraint, and changing its position to appear after the make column.**

mysql> ALTER TABLE VEHICLE
   -> MODIFY COLOR varchar(20) AFTER MAKE;

```
mysql> ALTER TABLE VEHICLE
    -> MODIFY COLOR varchar(20) AFTER MAKE;
Query OK, 0 rows affected (0.03 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> DESC VEHICLE;
+-----------+--------------+------+-----+---------+-------+
| Field     | Type         | Null | Key | Default | Extra |
+-----------+--------------+------+-----+---------+-------+
| vehicleid | int          | NO   | PRI | NULL    |       |
| YEAR      | smallint     | YES  |     | NULL    |       |
| MAKE      | varchar(100) | NO   |     | NULL    |       |
| COLOR     | varchar(20)  | YES  |     | NULL    |       |
| MODEL     | varchar(100) | NO   |     | NULL    |       |
| NOTE      | varchar(100) | NO   |     | NULL    |       |
+-----------+--------------+------+-----+---------+-------+
6 rows in set (0.00 sec)
```

6. **In vehicles table, rename the column note to vehicleCondition.**
mysql> ALTER TABLE VEHICLE
   -> RENAME COLUMN NOTE TO vehicleCondition;

```
mysql> ALTER TABLE VEHICLE
    -> RENAME COLUMN NOTE TO vehicleCondition;
Query OK, 0 rows affected (0.01 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> DESC VEHICLE;
+------------------+--------------+------+-----+---------+-------+
| Field            | Type         | Null | Key | Default | Extra |
+------------------+--------------+------+-----+---------+-------+
| vehicleid        | int          | NO   | PRI | NULL    |       |
| YEAR             | smallint     | YES  |     | NULL    |       |
| MAKE             | varchar(100) | NO   |     | NULL    |       |
| COLOR            | varchar(20)  | YES  |     | NULL    |       |
| MODEL            | varchar(100) | NO   |     | NULL    |       |
| vehicleCondition | varchar(100) | NO   |     | NULL    |       |
+------------------+--------------+------+-----+---------+-------+
6 rows in set (0.00 sec)
```

7. **Create a table and insert some rows into the table. Add different constraints into the table using alter table statement.**

```
mysql> create table students
    -> (s_id int,
    -> s_name varchar(50),
    -> marks1 int,
    -> marks2 int,
    -> marks3 int);
Query OK, 0 rows affected (0.02 sec)

mysql> insert into students
    -> values(1,'nikita',90,88,77),(2,'shivam',78,89,99),(3,'atul',77,99,100);
Query OK, 3 rows affected (0.01 sec)
Records: 3  Duplicates: 0  Warnings: 0

mysql> select * from students;
+------+--------+--------+--------+--------+
| s_id | s_name | marks1 | marks2 | marks3 |
+------+--------+--------+--------+--------+
|    1 | nikita |     90 |     88 |     77 |
|    2 | shivam |     78 |     89 |     99 |
|    3 | atul   |     77 |     99 |    100 |
+------+--------+--------+--------+--------+
3 rows in set (0.00 sec)
```

```
mysql> alter table students
    -> add column total int;
Query OK, 0 rows affected (0.01 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> select * from students;
+------+--------+--------+--------+--------+-------+
| s_id | s_name | marks1 | marks2 | marks3 | total |
+------+--------+--------+--------+--------+-------+
|    1 | nikita |     90 |     88 |     77 |  NULL |
|    2 | shivam |     78 |     89 |     99 |  NULL |
|    3 | atul   |     77 |     99 |    100 |  NULL |
+------+--------+--------+--------+--------+-------+
3 rows in set (0.00 sec)
```

```
mysql> alter table students
    -> add primary key(s_id);
Query OK, 0 rows affected (0.05 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

```
mysql> alter table students
    -> modify marks1 int default 0.0,
    -> modify marks2 int default 0.0,
    -> modify marks3 int default 0.0;
Query OK, 0 rows affected (0.01 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

8. **Display the productcode, productname, textdescription from products and productlines tables.**
   select productCode,productName,textDescription from products inner join productline
   -> using(productline);

```
mysql> select productCode,productName,textDescription from products inner join productline
    -> using(productlines);
ERROR 1146 (42S02): Table 'classicmodels.productline' doesn't exist
mysql> select productCode,productName,textDescription from products inner join productlines
    -> using(productline);
+-----------+------------------+------------------------------------------------------------------------+

+-----------+------------------+
| productCode | productName      | textDescription

+-----------+------------------+

+-----------+------------------+
| S10_1949  | 1952 Alpine Renault 1300         | Attention car enthusiasts: Make your wildest car ownership dreams come true. Whether you are looking for classic muscle cars, dream sports cars or movie-inspired miniatures, you will find great
choices in this category. These replicas feature superb attention to detail and craftsmanship and offer features such as working steering system, opening forward compartment, opening rear trunk with removable spare wheel, 4-wheel independent spring suspens
ion, and so on. The models range in size from 1:18 to 1:24 scale and include numerous limited edition and several out-of-production vehicles. All models include a certificate of authenticity from their manufacturers and come fully assembled and ready for d
isplay in the home or office. |
| S10_4757  | 1972 Alfa Romeo GTA              | Attention car enthusiasts: Make your wildest car ownership dreams come true. Whether you are looking for classic muscle cars, dream sports cars or movie-inspired miniatures, you will find great
choices in this category. These replicas feature superb attention to detail and craftsmanship and offer features such as working steering system, opening forward compartment, opening rear trunk with removable spare wheel, 4-wheel independent spring suspens
ion, and so on. The models range in size from 1:18 to 1:24 scale and include numerous limited edition and several out-of-production vehicles. All models include a certificate of authenticity from their manufacturers and come fully assembled and ready for d
isplay in the home or office. |
```

110 rows in set (0.00 sec)

9. **Display customernumber,customername,ordernumber and status of all the customers using left join.**

   mysql> select customerNumber, customerName,orderNumber,status
      -> from customers inner join orders
      -> using(customerNumber);

```
mysql> select customerNumber, customerName,orderNumber,status
    -> from customers left join orders
    -> using(customerNumber);
+----------------+------------------------------+-------------+------------+
| customerNumber | customerName                 | orderNumber | status     |
+----------------+------------------------------+-------------+------------+
|            103 | Atelier graphique            |       10123 | Shipped    |
|            103 | Atelier graphique            |       10298 | Shipped    |
|            103 | Atelier graphique            |       10345 | Shipped    |
|            112 | Signal Gift Stores           |       10124 | Shipped    |
|            112 | Signal Gift Stores           |       10278 | Shipped    |
|            112 | Signal Gift Stores           |       10346 | Shipped    |
|            114 | Australian Collectors, Co.   |       10120 | Shipped    |
|            114 | Australian Collectors, Co.   |       10125 | Shipped    |
|            114 | Australian Collectors, Co.   |       10223 | Shipped    |
|            114 | Australian Collectors, Co.   |       10342 | Shipped    |
|            114 | Australian Collectors, Co.   |       10347 | Shipped    |
|            119 | La Rochelle Gifts            |       10275 | Shipped    |
|            119 | La Rochelle Gifts            |       10315 | Shipped    |
|            119 | La Rochelle Gifts            |       10375 | Shipped    |
|            119 | La Rochelle Gifts            |       10425 | In Process |
|            121 | Baane Mini Imports           |       10103 | Shipped    |
|            121 | Baane Mini Imports           |       10158 | Shipped    |
|            121 | Baane Mini Imports           |       10309 | Shipped    |
```

350 rows in set (0.00 sec)

10. Join the customers and employees table using Right Join

mysql> select customerNumber, customerName, salesRepEmployeeNumber,employeeNumber,lastName,firstName
    -> from customers c right join employees e
    -> on c.salesRepEmployeeNumber = e.employeeNumber;

```
mysql> select customerNumber, customerName, salesRepEmployeeNumber,employeeNumber,lastName,firstName
    -> from customers c right join employees e
    -> on c.salesRepEmployeeNumber = e.employeeNumber;
+----------------+---------------------------+------------------------+----------------+-----------+-----------+
| customerNumber | customerName              | salesRepEmployeeNumber | employeeNumber | lastName  | firstName |
+----------------+---------------------------+------------------------+----------------+-----------+-----------+
|           NULL | NULL                      |                   NULL |           1002 | Murphy    | Diane     |
|           NULL | NULL                      |                   NULL |           1056 | Patterson | Mary      |
|           NULL | NULL                      |                   NULL |           1076 | Firrelli  | Jeff      |
|           NULL | NULL                      |                   NULL |           1088 | Patterson | William   |
|           NULL | NULL                      |                   NULL |           1102 | Bondur    | Gerard    |
|           NULL | NULL                      |                   NULL |           1143 | Bow       | Anthony   |
|            124 | Mini Gifts Distributors Ltd. |                 1165 |           1165 | Jennings  | Leslie    |
|            129 | Mini Wheels Co.           |                   1165 |           1165 | Jennings  | Leslie    |
|            161 | Technics Stores Inc.      |                   1165 |           1165 | Jennings  | Leslie    |
|            321 | Corporate Gift Ideas Co.  |                   1165 |           1165 | Jennings  | Leslie    |
|            450 | The Sharp Gifts Warehouse |                   1165 |           1165 | Jennings  | Leslie    |
|            487 | Signal Collectibles Ltd.  |                   1165 |           1165 | Jennings  | Leslie    |
|            112 | Signal Gift Stores        |                   1166 |           1166 | Thompson  | Leslie    |
|            205 | Toys4GrownUps.com         |                   1166 |           1166 | Thompson  | Leslie    |
|            219 | Boards & Toys Co.         |                   1166 |           1166 | Thompson  | Leslie    |
```
108 rows in set (0.00 sec)

11. Use a subquery to return the employees who work in the offices located in the USA.

mysql> select lastName,firstName, officecode from employees
    -> where officeCode in (select officecode from offices where country = 'USA');

```
mysql> select lastName,firstName, officecode from employees
    -> where officeCode in ( select officecode from offices where country = 'USA');
+-----------+-----------+------------+
| lastName  | firstName | officecode |
+-----------+-----------+------------+
| Murphy    | Diane     | 1          |
| Patterson | Mary      | 1          |
| Firrelli  | Jeff      | 1          |
| Bow       | Anthony   | 1          |
| Jennings  | Leslie    | 1          |
| Thompson  | Leslie    | 1          |
| Firrelli  | Julie     | 2          |
| Patterson | Steve     | 2          |
| Tseng     | Foon Yue  | 3          |
| Vanauf    | George    | 3          |
+-----------+-----------+------------+
10 rows in set (0.00 sec)
```

12. Display the details from the payments table who has the highest payment

mysql> select * from payments
   -> where amount = (select max(amount) from payments);

```
mysql> select * from payments
    -> where amount = (select max(amount) from payments);
+----------------+-------------+-------------+------------+
| customerNumber | checkNumber | paymentDate | amount     |
+----------------+-------------+-------------+------------+
|            141 | JE105477    | 2005-03-18  | 120166.58 |
+----------------+-------------+-------------+------------+
1 row in set (0.00 sec)
```

13.Find customers whose payments are greater than the average payment
mysql> select * from payments
   -> where amount> (select avg(amount) from payments);

```
mysql> select * from payments
    -> where amount> (select avg(amount) from payments);
+----------------+-------------+-------------+------------+
| customerNumber | checkNumber | paymentDate | amount     |
+----------------+-------------+-------------+------------+
|            112 | HQ55022     | 2003-06-06  |  32641.98 |
|            112 | ND748579    | 2004-08-20  |  33347.88 |
|            114 | GG31455     | 2003-05-20  |  45864.03 |
|            114 | MA765515    | 2004-12-15  |  82261.22 |
|            114 | NR27552     | 2004-03-10  |  44894.74 |
|            119 | LN373447    | 2004-08-08  |  47924.19 |
|            119 | NG94694     | 2005-02-22  |  49523.67 |
|            121 | DB889831    | 2003-02-16  |  50218.95 |
|            121 | MA302151    | 2004-11-28  |  34638.14 |
|            124 | AE215433    | 2005-03-05  | 101244.59 |
|            124 | BG255406    | 2004-08-28  |  85410.87 |
|            124 | ET64396     | 2005-04-16  |  83598.04 |
|            124 | HI366474    | 2004-12-27  |  47142.70 |
|            124 | HR86578     | 2004-11-02  |  55639.66 |
```

134 rows in set (0.00 sec)

14. Find the customers who have not placed any orders.

mysql> select customerNumber,customerName from customers
   -> where customernumber NOT IN (select customerNumber from orders);

```
mysql> select customerNumber,customerName from customers
    -> where customernumber NOT IN (select customerNumber from orders);
+----------------+------------------------------+
| customerNumber | customerName                 |
+----------------+------------------------------+
|            125 | Havel & Zbyszek Co           |
|            168 | American Souvenirs Inc       |
|            169 | Porto Imports Co.            |
|            206 | Asian Shopping Network, Co   |
|            223 | Natürlich Autos              |
|            237 | ANG Resellers                |
|            247 | Messner Shopping Network     |
|            273 | Franken Gifts, Co            |
|            293 | BG&E Collectables            |
|            303 | Schuyler Imports             |
|            307 | Der Hund Imports             |
|            335 | Cramer Spezialitäten, Ltd    |
|            348 | Asian Treasures, Inc.        |
|            356 | SAR Distributors, Co         |
|            361 | Kommission Auto              |
|            369 | Lisboa Souveniers, Inc       |
|            376 | Precious Collectables        |
|            409 | Stuttgart Collectable Exchange |
|            443 | Feuer Online Stores, Inc     |
|            459 | Warburg Exchange             |
|            465 | Anton Designs, Ltd.          |
|            477 | Mit Vergnügen & Co.          |
|            480 | Kremlin Collectables, Co.    |
|            481 | Raanan Stores, Inc           |
+----------------+------------------------------+
24 rows in set (0.00 sec)
```