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.

   Ans:

   Create table vehicles(

   vehicleid int primary key,

   year int not null,

   make varchar(100) not null

   );

```
mysql> Create table vehicles(
    -> vehicleid int primary key,
    -> year int not null,
    -> make varchar(100) not null
    -> );
Query OK, 0 rows affected (0.02 sec)

mysql> desc vehicles;
+-----------+--------------+------+-----+---------+-------+
| 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)

   Ans:

   Alter table vehicles

   add model varchar(100) not null,

   add color varchar(50),

   add note varchar(255);

```
mysql> Alter table vehicles
    -> add 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 vehicles;
+-----------+--------------+------+-----+---------+-------+
| 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.

    Ans:

    Alter table vehicles modify note varchar(100) not null;

```
mysql> Alter table vehicles modify note varchar(100) not null;
Query OK, 0 rows affected (0.02 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc vehicles;
+-----------+--------------+------+-----+---------+-------+
| 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. In the vehicles table, modify the data type of the year column from INT to SMALLINT

   Ans:

   Alter table vehicles modify year smallint;

```
mysql> Alter table vehicles modify year smallint;
Query OK, 0 rows affected (0.02 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc vehicles;
+-----------+--------------+------+-----+---------+-------+
| 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.

   Ans:

   Alter table vehicles modify color varchar(20) after make;

```
mysql> Alter table vehicles modify color varchar(20) after make;
Query OK, 0 rows affected (0.02 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc vehicles;
+-----------+--------------+------+-----+---------+-------+
| 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

   Ans:

   Alter table vehicles change note vehicleCondition varchar(100);

```
mysql> Alter table vehicles change note vehicleCondition varchar(100);
Query OK, 0 rows affected (0.03 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc vehicles;
+------------------+--------------+------+-----+---------+-------+
| 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) | YES  |     | 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

   Ans:

   Create-

   Create table food (
   food_id int,
   foodname varchar(20),
   foodprice int
   );

```
mysql> Create table food (
    -> food_id int,
    -> foodname varchar(20),
    -> foodprice  int
    -> );
Query OK, 0 rows affected (0.01 sec)

mysql> desc food;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| food_id   | int         | YES  |     | NULL    |       |
| foodname  | varchar(20) | YES  |     | NULL    |       |
| foodprice | int         | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

Insert-

Insert into food values (1,"pizza",200), (2,"burger",100), (3,"pasta",150);

```
mysql> Insert into food values (1,"pizza",200), (2,"burger",100), (3,"pasta",150);
Query OK, 3 rows affected (0.00 sec)
Records: 3  Duplicates: 0  Warnings: 0

mysql> select * from food;
+---------+----------+-----------+
| food_id | foodname | foodprice |
+---------+----------+-----------+
|       1 | pizza    |       200 |
|       2 | burger   |       100 |
|       3 | pasta    |       150 |
+---------+----------+-----------+
3 rows in set (0.00 sec)
```

Alter-

Alter table food add primary key(food_id);

```
mysql> Alter table food add primary key(food_id);
Query OK, 0 rows affected (0.03 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc food;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| food_id   | int         | NO   | PRI | NULL    |       |
| foodname  | varchar(20) | YES  |     | NULL    |       |
| foodprice | int         | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

Alter table food modify foodprice int not null;

```
mysql> Alter table food modify foodprice int not null;
Query OK, 0 rows affected (0.04 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc food;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| food_id   | int         | NO   | PRI | NULL    |       |
| foodname  | varchar(20) | YES  |     | NULL    |       |
| foodprice | int         | NO   |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

Alter table food alter column foodname set default "coming soon";

```
mysql> Alter table food alter column foodname set default "coming soon";
Query OK, 0 rows affected (0.01 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc food;
+-----------+-------------+------+-----+-------------+-------+
| Field     | Type        | Null | Key | Default     | Extra |
+-----------+-------------+------+-----+-------------+-------+
| food_id   | int         | NO   | PRI | NULL        |       |
| foodname  | varchar(20) | NO   |     | coming soon |       |
| foodprice | int         | NO   |     | NULL        |       |
+-----------+-------------+------+-----+-------------+-------+
3 rows in set (0.00 sec)
```

```
mysql> Insert into food values (4,default,250);
Query OK, 1 row affected (0.00 sec)

mysql> select * from food;
+---------+-------------+-----------+
| food_id | foodname    | foodprice |
+---------+-------------+-----------+
|       1 | pizza       |       200 |
|       2 | burger      |       100 |
|       3 | pasta       |       150 |
|       4 | coming soon |       250 |
+---------+-------------+-----------+
4 rows in set (0.00 sec)
```

8. Display the productcode, productname, textdescription from products and productlines
   tables
   Ans:
   select productcode, productname, textdescription from products inner join productlines
   using (productline);

```
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 spo
rts 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 suspension, and so on. The models range in size from 1:10 to 1:24 scale and include nu
merous 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 display in the home o
r 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 spo
rts 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 suspension, and so on. The models range in size from 1:10 to 1:24 scale and include nu
merous 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 display in the home o
r office. |
| S10_4962    | 1962 LanciaA Delta 16V                  | Attention car enthusiasts: Make your wildest car ownership dreams come true. Whether you are looking for classic muscle cars, dream spo
rts 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 suspension, and so on. The models range in size from 1:10 to 1:24 scale and include nu
merous 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 display in the home o
r office. |
| S12_1099    | 1968 Ford Mustang                       | Attention car enthusiasts: Make your wildest car ownership dreams come true. Whether you are looking for classic muscle cars, dream spo
rts 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 suspension, and so on. The models range in size from 1:10 to 1:24 scale and include nu
merous 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 display in the home o
r office. |
| S12_1108    | 2001 Ferrari Enzo                       | Attention car enthusiasts: Make your wildest car ownership dreams come true. Whether you are looking for classic muscle cars, dream spo
```

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

   select customernumber, customername, ordernumber, status from customers left 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    |
|            121 | Baane Mini Imports         |       10325 | Shipped    |
|            124 | Mini Gifts Distributors Ltd. |     10113 | Shipped    |
|            124 | Mini Gifts Distributors Ltd. |     10135 | Shipped    |
|            124 | Mini Gifts Distributors Ltd. |     10142 | Shipped    |
|            124 | Mini Gifts Distributors Ltd. |     10182 | Shipped    |
|            124 | Mini Gifts Distributors Ltd. |     10229 | Shipped    |
|            124 | Mini Gifts Distributors Ltd. |     10271 | Shipped    |
|            124 | Mini Gifts Distributors Ltd. |     10282 | Shipped    |
|            124 | Mini Gifts Distributors Ltd. |     10312 | Shipped    |
|            124 | Mini Gifts Distributors Ltd. |     10335 | Shipped    |
|            124 | Mini Gifts Distributors Ltd. |     10357 | Shipped    |
|            124 | Mini Gifts Distributors Ltd. |     10368 | Shipped    |
|            124 | Mini Gifts Distributors Ltd. |     10371 | Shipped    |
|            124 | Mini Gifts Distributors Ltd. |     10382 | Shipped    |
|            124 | Mini Gifts Distributors Ltd. |     10385 | Shipped    |
|            124 | Mini Gifts Distributors Ltd. |     10390 | Shipped    |
|            124 | Mini Gifts Distributors Ltd. |     10396 | Shipped    |
|            124 | Mini Gifts Distributors Ltd. |     10421 | In Process |
|            125 | Havel & Zbyszek Co         |        NULL | NULL       |
|            128 | Blauer See Auto, Co.       |       10101 | Shipped    |
|            128 | Blauer See Auto, Co.       |       10230 | Shipped    |
|            128 | Blauer See Auto, Co.       |       10300 | Shipped    |
|            128 | Blauer See Auto, Co.       |       10323 | Shipped    |
|            129 | Mini Wheels Co.            |       10111 | Shipped    |
```

10. Join the customers and employees table using Right Join

    Ans:

    select customernumber, customername, salesrepemployeenumber, lastname, firstname
    from customers c right join employees e
    on (c. salesrepemployeenumber=e.employeenumber);

```
mysql> select customernumber, customername, salesrepemployeenumber, lastname, firstname
    -> from customers c right join employees e
    -> on (c. salesrepemployeenumber=e.employeenumber);
+----------------+------------------------------+------------------------+-----------+-----------+
| customernumber | customername                 | salesrepemployeenumber | lastname  | firstname |
+----------------+------------------------------+------------------------+-----------+-----------+
|           NULL | NULL                         |                   NULL | Murphy    | Diane     |
|           NULL | NULL                         |                   NULL | Patterson | Mary      |
|           NULL | NULL                         |                   NULL | Firrelli  | Jeff      |
|           NULL | NULL                         |                   NULL | Patterson | William   |
|           NULL | NULL                         |                   NULL | Bondur    | Gerard    |
|           NULL | NULL                         |                   NULL | Bow       | Anthony   |
|            124 | Mini Gifts Distributors Ltd. |                   1165 | Jennings  | Leslie    |
|            129 | Mini Wheels Co.              |                   1165 | Jennings  | Leslie    |
|            161 | Technics Stores Inc.         |                   1165 | Jennings  | Leslie    |
|            321 | Corporate Gift Ideas Co.     |                   1165 | Jennings  | Leslie    |
|            450 | The Sharp Gifts Warehouse    |                   1165 | Jennings  | Leslie    |
|            487 | Signal Collectibles Ltd.     |                   1165 | Jennings  | Leslie    |
|            112 | Signal Gift Stores           |                   1166 | Thompson  | Leslie    |
|            205 | Toys4GrownUps.com            |                   1166 | Thompson  | Leslie    |
|            219 | Boards & Toys Co.            |                   1166 | Thompson  | Leslie    |
|            239 | Collectable Mini Designs Co. |                   1166 | Thompson  | Leslie    |
|            347 | Men 'R' US Retailers, Ltd.   |                   1166 | Thompson  | Leslie    |
|            475 | West Coast Collectables Co.  |                   1166 | Thompson  | Leslie    |
|            173 | Cambridge Collectables Co.   |                   1188 | Firrelli  | Julie     |
|            204 | Online Mini Collectables     |                   1188 | Firrelli  | Julie     |
|            320 | Mini Creations Ltd.          |                   1188 | Firrelli  | Julie     |
|            339 | Classic Gift Ideas, Inc      |                   1188 | Firrelli  | Julie     |
|            379 | Collectables For Less Inc.   |                   1188 | Firrelli  | Julie     |
|            495 | Diecast Collectables         |                   1188 | Firrelli  | Julie     |
|            157 | Diecast Classics Inc.        |                   1216 | Patterson | Steve     |
```

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

Ans:

select * from employees
where officecode in (
select officecode
from offices
where country = "USA"
);

```
mysql> select * from employees
    -> where officecode in (
    -> select officecode
    -> from offices
    -> where country = "USA"
    -> );
+--------------+-----------+-----------+-----------+--------------------------------+------------+----------+----------------------+
| employeeNumber | lastName  | firstName | extension | email                          | officeCode | reportsTo | jobTitle            |
+--------------+-----------+-----------+-----------+--------------------------------+------------+----------+----------------------+
|         1002 | Murphy    | Diane     | x5800     | dmurphy@classicmodelcars.com   | 1          |     NULL | President            |
|         1056 | Patterson | Mary      | x4611     | mpatterso@classicmodelcars.com | 1          |     1002 | VP Sales             |
|         1076 | Firrelli  | Jeff      | x9273     | jfirrelli@classicmodelcars.com | 1          |     1002 | VP Marketing         |
|         1143 | Bow       | Anthony   | x5428     | abow@classicmodelcars.com      | 1          |     1056 | Sales Manager (NA)   |
|         1165 | Jennings  | Leslie    | x3291     | ljennings@classicmodelcars.com | 1          |     1143 | Sales Rep            |
|         1166 | Thompson  | Leslie    | x4065     | lthompson@classicmodelcars.com | 1          |     1143 | Sales Rep            |
|         1188 | Firrelli  | Julie     | x2173     | jfirrelli@classicmodelcars.com | 2          |     1143 | Sales Rep            |
|         1216 | Patterson | Steve     | x4334     | spatterson@classicmodelcars.com | 2         |     1143 | Sales Rep            |
|         1286 | Tseng     | Foon Yue  | x2248     | ftseng@classicmodelcars.com    | 3          |     1143 | Sales Rep            |
|         1323 | Vanauf    | George    | x4102     | gvanauf@classicmodelcars.com   | 3          |     1143 | Sales Rep            |
+--------------+-----------+-----------+-----------+--------------------------------+------------+----------+----------------------+
10 rows in set (0.00 sec)
```

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

    Ans:

    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
    Ans:
    Select customernumber from payments
    where amount >(Select avg(amount) from payments);

```
mysql> Select customernumber from payments
    -> where amount >(Select avg(amount) from payments);
+----------------+
| customernumber |
+----------------+
|            112 |
|            112 |
|            114 |
|            114 |
|            114 |
|            119 |
|            119 |
|            121 |
|            121 |
|            124 |
|            124 |
|            124 |
|            124 |
|            124 |
|            124 |
|            124 |
|            128 |
|            131 |
|            131 |
|            141 |
|            141 |
|            141 |
|            141 |
```

14. Find the customers who have not placed any orders

Ans:

select customernumber from customers

where customernumber not in(select customernumber from orders);

```
mysql> select customernumber from customers where customernumber not in(select customernumber from orders);
+----------------+
| customernumber |
+----------------+
|            125 |
|            169 |
|            206 |
|            223 |
|            237 |
|            247 |
|            273 |
|            293 |
|            303 |
|            307 |
|            335 |
|            348 |
|            356 |
|            361 |
|            369 |
|            409 |
|            443 |
|            459 |
|            465 |
|            477 |
|            480 |
|            481 |
|            168 |
|            376 |
+----------------+
24 rows in set (0.00 sec)
```