MNNIT ALLAHABAD

DBMS

SUBMITTED BY :
NAME : SHISHU
ROLL/REG ID : 2020CA089
SUBMIT DATE : 17/12/2021

SUBMITTED TO :
TEACHER _____
DEPPT : COMPUTER SCIENCE
DEADLINE: 17/12/2021

Q 1. Considering the given relations, operate the following queries:

```
CREATE  TABLE  stud_member  (
        Roll_No INT(5) NOT NULL ,
        F_Name VARCHAR(20) NOT NULL ,
        M_Name VARCHAR(20) NOT NULL ,
        S_Name VARCHAR(20) NOT NULL ,
        Dept_ID INT(3) NOT NULL ,
        Semester INT(3) NOT NULL ,
        Contact_No INT(20) NOT NULL ,
        Gender VARCHAR(3) NOT NULL ,
        PRIMARY KEY (Roll_No)
);
```

```
MariaDB [(none)]> USE mca3;
Database changed
MariaDB [mca3]> CREATE TABLE stud_member (
    -> Roll_No INT(5) NOT NULL ,
    -> F_Name VARCHAR(20) NOT NULL ,
    -> M_Name VARCHAR(20) NOT NULL ,
    -> S_Name VARCHAR(20) NOT NULL ,
    -> Dept_ID INT(3) NOT NULL ,
    -> Semester INT(3) NOT NULL ,
    -> Contact_No INT(20) NOT NULL ,
    -> Gender VARCHAR(3) NOT NULL ,
    -> PRIMARY KEY (Roll_No)
    -> );
Query OK, 0 rows affected (0.011 sec)

MariaDB [mca3]> DESC stud_member;
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| Roll_No    | int(5)      | NO   | PRI | NULL    |       |
| F_Name     | varchar(20) | NO   |     | NULL    |       |
| M_Name     | varchar(20) | NO   |     | NULL    |       |
| S_Name     | varchar(20) | NO   |     | NULL    |       |
| Dept_ID    | int(3)      | NO   |     | NULL    |       |
| Semester   | int(3)      | NO   |     | NULL    |       |
| Contact_No | int(20)     | NO   |     | NULL    |       |
| Gender     | varchar(3)  | NO   |     | NULL    |       |
+------------+-------------+------+-----+---------+-------+
8 rows in set (0.009 sec)

MariaDB [mca3]>
```

```
INSERT INTO stud_member
(Roll_No, F_Name, M_Name, S_Name, Dept_ID, Semester, Contact_No, Gender) VALUES
(1 , 'Ankur' , 'Samir' , 'Kahar' ,1 ,1 ,272121 , 'M' ),
(2 , 'Dhaval' , 'Dhiren' , 'Joshi' ,1 ,1 ,232122 , 'M' ),
(3 , 'Ankita' , 'Biren', 'Shah', 1, 1, 112121, 'F'),
(10,'Komal', 'Maheskumar', 'Pandey', 2, 3, 123123, 'F'),
(13, 'Amit', 'Jitenkumar', 'Mehta', 3, 3, 453667, 'M'),
(23,'Jinal', 'Ashish', 'Gandhi', 2, 1, 323232, 'M'),
(22,'Ganesh', 'Asha', 'Patel', 2, 3, 124244, 'M'),
(4, 'Shweta', 'Mihir', 'Patel', 3, 1, 646342, 'F'),
(7, 'Pooja', 'Mayank', 'Desai', 3, 3, 328656, 'F'),
(8, 'Komal', 'Krishnaraj', 'Bhatia', 2, 3, 257422, 'F'),
(43, 'Kiran', 'Viraj', 'Shah', 1, 1, 754124, 'F') ;
```

```
MariaDB [mca3]> INSERT INTO stud_member
    -> (Roll_No, F_Name, M_Name, S_Name, Dept_ID, Semester, Contact_No, Gender) VALUES
    -> (1 , 'Ankur' , 'Samir' , 'Kahar' ,1 ,1 ,272121 , 'M' ),
    -> (2 , 'Dhaval' , 'Dhiren' , 'Joshi' ,1 ,1 ,232122 , 'M' ),
    -> (3 , 'Ankita' , 'Biren', 'Shah', 1, 1, 112121, 'F'),
    -> (10,'Komal', 'Maheskumar', 'Pandey', 2, 3, 123123, 'F'),
    -> (13, 'Amit', 'Jitenkumar', 'Mehta', 3, 3, 453667, 'M'),
    -> (23,'Jinal', 'Ashish', 'Gandhi', 2, 1, 323232, 'M'),
    -> (22,'Ganesh', 'Asha', 'Patel', 2, 3, 124244, 'M'),
    -> (4, 'Shweta', 'Mihir', 'Patel', 3, 1, 646342, 'F'),
    -> (7, 'Pooja', 'Mayank', 'Desai', 3, 3, 328656, 'F'),
    -> (8, 'Komal', 'Krishnaraj', 'Bhatia', 2, 3, 257422, 'F'),
    -> (43, 'Kiran', 'Viraj', 'Shah', 1, 1, 754124, 'F');
Query OK, 11 rows affected (0.009 sec)
Records: 11  Duplicates: 0  Warnings: 0

MariaDB [mca3]> SELECT * FROM stud_member;
+---------+--------+-----------+--------+---------+----------+------------+--------+
| Roll_No | F_Name | M_Name    | S_Name | Dept_ID | Semester | Contact_No | Gender |
+---------+--------+-----------+--------+---------+----------+------------+--------+
|       1 | Ankur  | Samir     | Kahar  |       1 |        1 |     272121 | M      |
|       2 | Dhaval | Dhiren    | Joshi  |       1 |        1 |     232122 | M      |
|       3 | Ankita | Biren     | Shah   |       1 |        1 |     112121 | F      |
|       4 | Shweta | Mihir     | Patel  |       3 |        1 |     646342 | F      |
|       7 | Pooja  | Mayank    | Desai  |       3 |        3 |     328656 | F      |
|       8 | Komal  | Krishnaraj | Bhatia |       2 |        3 |     257422 | F      |
|      10 | Komal  | Maheskumar | Pandey |       2 |        3 |     123123 | F      |
|      13 | Amit   | Jitenkumar | Mehta  |       3 |        3 |     453667 | M      |
|      22 | Ganesh | Asha      | Patel  |       2 |        3 |     124244 | M      |
|      23 | Jinal  | Ashish    | Gandhi |       2 |        1 |     323232 | M      |
|      43 | Kiran  | Viraj     | Shah   |       1 |        1 |     754124 | F      |
+---------+--------+-----------+--------+---------+----------+------------+--------+
11 rows in set (0.001 sec)
```

```
CREATE TABLE department (
Dept_ID INT(3 ) NOT NULL ,
Dept_Name VARCHAR(50) NOT NULL ,
PRIMARY KEY (Dept_ID) );
```

```
MariaDB [mca3]> CREATE TABLE department (
    -> Dept_ID INT(3 ) NOT NULL ,
    -> Dept_Name VARCHAR(50) NOT NULL ,
    -> PRIMARY KEY (Dept_ID) );
Query OK, 0 rows affected (0.018 sec)

MariaDB [mca3]> DESC department;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| Dept_ID   | int(3)      | NO   | PRI | NULL    |       |
| Dept_Name | varchar(50) | NO   |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
2 rows in set (0.014 sec)

MariaDB [mca3]>
```

```
INSERT INTO department (Dept_ID, Dept_Name) VALUES
(1, 'Information Technology'),
(2, 'Electrical'),
(3, 'Civil'),
(4, 'Mechanical'),
(5, 'Chemical');
```

```
MariaDB [mca3]> INSERT INTO department (Dept_ID, Dept_Name) VALUES
    -> (1, 'Information Technology'),
    -> (2, 'Electrical'),
    -> (3, 'Civil'),
    -> (4, 'Mechanical'),
    -> (5, 'Chemical');
Query OK, 5 rows affected (0.008 sec)
Records: 5  Duplicates: 0  Warnings: 0

MariaDB [mca3]> SELECT * FROM department;
+---------+-----------------------+
| Dept_ID | Dept_Name             |
+---------+-----------------------+
|       1 | Information Technology |
|       2 | Electrical            |
|       3 | Civil                 |
|       4 | Mechanical            |
|       5 | Chemical              |
+---------+-----------------------+
5 rows in set (0.000 sec)
```

ALTER TABLE stud_member
ADD FOREIGN KEY (Dept_ID) REFERENCES department(Dept_ID) ;

```
MariaDB [mca3]> ALTER TABLE stud_member
    -> ADD FOREIGN KEY (Dept_ID) REFERENCES department(Dept_ID) ;
Query OK, 11 rows affected (0.050 sec)
Records: 11  Duplicates: 0  Warnings: 0

MariaDB [mca3]> DESC stud_member;
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| Roll_No    | int(5)      | NO   | PRI | NULL    |       |
| F_Name     | varchar(20) | NO   |     | NULL    |       |
| M_Name     | varchar(20) | NO   |     | NULL    |       |
| S_Name     | varchar(20) | NO   |     | NULL    |       |
| Dept_ID    | int(3)      | NO   | MUL | NULL    |       |
| Semester   | int(3)      | NO   |     | NULL    |       |
| Contact_No | int(20)     | NO   |     | NULL    |       |
| Gender     | varchar(3)  | NO   |     | NULL    |       |
+------------+-------------+------+-----+---------+-------+
8 rows in set (0.014 sec)
```

1. Display the names and contact number of all student member

SELECT CONCAT(F_Name ,' ', M_Name ,' ',S_Name) AS Name, Contact_No FROM stud_member;

```
MariaDB [mca3]> SELECT CONCAT(F_Name ,' ', M_Name ,' ',S_Name) AS Name, Contact_No FROM stud_member;
+-------------------------+------------+
| Name                    | Contact_No |
+-------------------------+------------+
| Ankur Samir Kahar       |     272121 |
| Dhaval Dhiren Joshi     |     232122 |
| Ankita Biren Shah       |     112121 |
| Shweta Mihir Patel      |     646342 |
| Pooja Mayank Desai      |     328656 |
| Komal Krishnaraj Bhatia |     257422 |
| Komal Maheskumar Pandey |     123123 |
| Amit Jitenkumar Mehta   |     453667 |
| Ganesh Asha Patel       |     124244 |
| Jinal Ashish Gandhi     |     323232 |
| Kiran Viraj Shah        |     754124 |
+-------------------------+------------+
11 rows in set (0.001 sec)
```

2. Give the names and roll numbers of all students of information technology who are the members

SELECT Roll_No, F_Name FROM STUD_MEMBER S, DEPARTMENT D
WHERE S.Dept_ID=D.Dept_ID and D.Dept_Name="Information Technology";

```
MariaDB [mca3]> SELECT Roll_No, F_Name FROM STUD_MEMBER S, DEPARTMENT D
    -> WHERE S.Dept_ID=D.Dept_ID and D.Dept_Name="Information Technology";
+---------+--------+
| Roll_No | F_Name |
+---------+--------+
|       1 | Ankur  |
|       2 | Dhaval |
|       3 | Ankita |
|      43 | Kiran  |
+---------+--------+
4 rows in set (0.001 sec)
```

3. Display the names of department whose students are members

SELECT DISTINCT Dept_Name FROM department D, stud_member S
WHERE D.Dept_ID=S.Dept_ID;

```
MariaDB [mca3]> SELECT DISTINCT Dept_Name FROM department D, stud_member S
    -> WHERE D.Dept_ID=S.Dept_ID;
+------------------------+
| Dept_Name              |
+------------------------+
| Information Technology |
| Electrical             |
| Civil                  |
+------------------------+
3 rows in set (0.001 sec)
```

4. Display the names of departments for which no student are the members

```
SELECT Dept_Name FROM department
WHERE DEPT_Name NOT IN (
SELECT DISTINCT Dept_Name FROM department D, stud_member S
WHERE S.Dept_ID=D.Dept_ID);
```

```
MariaDB [mca3]> SELECT Dept_Name FROM department
    -> WHERE DEPT_Name NOT IN (
    -> SELECT DISTINCT Dept_Name FROM department D, stud_member S
    -> WHERE S.Dept_ID=D.Dept_ID);
+------------+
| Dept_Name  |
+------------+
| Mechanical |
| Chemical   |
+------------+
2 rows in set (0.003 sec)
```

5. Display the names of all departments

```
SELECT Dept_Name FROM department ;
```

```
MariaDB [mca3]> SELECT Dept_Name FROM department ;
+------------------------+
| Dept_Name              |
+------------------------+
| Information Technology |
| Electrical             |
| Civil                  |
| Mechanical             |
| Chemical               |
+------------------------+
5 rows in set (0.001 sec)
```

6. Find the names of students of electrical department who are the members

```
SELECT F_Name FROM stud_member S, department D
WHERE S.Dept_ID=D.Dept_ID AND D.Dept_Name="Electrical" ;
```

```
MariaDB [mca3]> SELECT F_Name FROM stud_member S, department D
    -> WHERE S.Dept_ID=D.Dept_ID AND D.Dept_Name="Electrical" ;
+--------+
| F_Name |
+--------+
| Komal  |
| Komal  |
| Ganesh |
| Jinal  |
+--------+
4 rows in set (0.001 sec)
```

7. Display the information of students members whose names begin with the letter A

```
SELECT * FROM stud_member
WHERE F_Name LIKE "A%";
```

```
MariaDB [mca3]> SELECT * FROM stud_member
    -> WHERE F_Name LIKE "A%";
+---------+--------+-----------+--------+---------+----------+------------+--------+
| Roll_No | F_Name | M_Name    | S_Name | Dept_ID | Semester | Contact_No | Gender |
+---------+--------+-----------+--------+---------+----------+------------+--------+
|       1 | Ankur  | Samir     | Kahar  |       1 |        1 |     272121 | M      |
|       3 | Ankita | Biren     | Shah   |       1 |        1 |     112121 | F      |
|      13 | Amit   | Jitenkumar | Mehta  |       3 |        3 |     453667 | M      |
+---------+--------+-----------+--------+---------+----------+------------+--------+
3 rows in set (0.001 sec)
```

8. Display all the details of male members only

```
SELECT * FROM stud_member
WHERE Gender="M";
```

```
MariaDB [mca3]> SELECT * FROM stud_member
    -> WHERE Gender="M";
+---------+--------+------------+--------+---------+----------+------------+--------+
| Roll_No | F_Name | M_Name     | S_Name | Dept_ID | Semester | Contact_No | Gender |
+---------+--------+------------+--------+---------+----------+------------+--------+
|       1 | Ankur  | Samir      | Kahar  |       1 |        1 |     272121 | M      |
|       2 | Dhaval | Dhiren     | Joshi  |       1 |        1 |     232122 | M      |
|      13 | Amit   | Jitenkumar | Mehta  |       3 |        3 |     453667 | M      |
|      22 | Ganesh | Asha       | Patel  |       2 |        3 |     124244 | M      |
|      23 | Jinal  | Ashish     | Gandhi |       2 |        1 |     323232 | M      |
+---------+--------+------------+--------+---------+----------+------------+--------+
5 rows in set (0.001 sec)
```

9. Display the data of student members who are currently in semester 3

```
SELECT * FROM stud_member
WHERE Semester=3;
```

```
MariaDB [mca3]> SELECT * FROM stud_member
    -> WHERE Semester=3;
+---------+--------+------------+--------+---------+----------+------------+--------+
| Roll_No | F_Name | M_Name     | S_Name | Dept_ID | Semester | Contact_No | Gender |
+---------+--------+------------+--------+---------+----------+------------+--------+
|       7 | Pooja  | Mayank     | Desai  |       3 |        3 |     328656 | F      |
|       8 | Komal  | Krishnaraj | Bhatia |       2 |        3 |     257422 | F      |
|      10 | Komal  | Maheskumar | Pandey |       2 |        3 |     123123 | F      |
|      13 | Amit   | Jitenkumar | Mehta  |       3 |        3 |     453667 | M      |
|      22 | Ganesh | Asha       | Patel  |       2 |        3 |     124244 | M      |
+---------+--------+------------+--------+---------+----------+------------+--------+
5 rows in set (0.001 sec)
```

10. Display the data of student female member in alphabetic order

```
SELECT * FROM stud_member
WHERE Gender="F" ORDER BY F_Name;
```

```
MariaDB [mca3]> SELECT * FROM stud_member
    -> WHERE Gender="F" ORDER BY F_Name;
+---------+--------+------------+--------+---------+----------+------------+--------+
| Roll_No | F_Name | M_Name     | S_Name | Dept_ID | Semester | Contact_No | Gender |
+---------+--------+------------+--------+---------+----------+------------+--------+
|       3 | Ankita | Biren      | Shah   |       1 |        1 |     112121 | F      |
|      43 | Kiran  | Viraj      | Shah   |       1 |        1 |     754124 | F      |
|       8 | Komal  | Krishnaraj | Bhatia |       2 |        3 |     257422 | F      |
|      10 | Komal  | Maheskumar | Pandey |       2 |        3 |     123123 | F      |
|       7 | Pooja  | Mayank     | Desai  |       3 |        3 |     328656 | F      |
|       4 | Shweta | Mihir      | Patel  |       3 |        1 |     646342 | F      |
+---------+--------+------------+--------+---------+----------+------------+--------+
6 rows in set (0.001 sec)
```

Q2. Consider the following relations and operate the given queries.

```
CREATE TABLE sales (
OrderID INT(10) NOT NULL ,
OrderDate DATE NOT NULL ,
OrderPrice INT(100) NOT NULL ,
OrderQuantity INT(20) NOT NULL ,
CustomerName VARCHAR(250) NOT NULL ,
PRIMARY KEY (OrderID) );
```

```
MariaDB [mca3]> CREATE TABLE sales (
    -> OrderID INT(10) NOT NULL ,
    -> OrderDate DATE NOT NULL ,
    -> OrderPrice INT(100) NOT NULL ,
    -> OrderQuantity INT(20) NOT NULL ,
    -> CustomerName VARCHAR(250) NOT NULL ,
    -> PRIMARY KEY (OrderID) );
Query OK, 0 rows affected (0.020 sec)

MariaDB [mca3]> DESC sales;
+---------------+--------------+------+-----+---------+-------+
| Field         | Type         | Null | Key | Default | Extra |
+---------------+--------------+------+-----+---------+-------+
| OrderID       | int(10)      | NO   | PRI | NULL    |       |
| OrderDate     | date         | NO   |     | NULL    |       |
| OrderPrice    | int(100)     | NO   |     | NULL    |       |
| OrderQuantity | int(20)      | NO   |     | NULL    |       |
| CustomerName  | varchar(250) | NO   |     | NULL    |       |
+---------------+--------------+------+-----+---------+-------+
5 rows in set (0.014 sec)
```

```
INSERT INTO sales
(OrderID, OrderDate, OrderPrice, OrderQuantity, CustomerName) VALUES
(1, '2005-12-22', 160, 2, 'Smith'),
(2, '2005-08-10', 190, 2, 'Johnson'),
(3, '2005-07-13', 500, 5, 'Baldwin'),
(4, '2005-07-15', 420,2, 'Smith'),
```

(5, '2005-12-22', 1000, 4, 'Wood'),
(6,'2005-10-02', 820, 4, 'Smith'),
(7, '2005-11-03', 2000, 2, 'Baldwin'),
(8, '2002-12-22', 1000, 4, 'Wood'),
(9, '2004-12-29', 5000, 4, 'Smith') ;

```
MariaDB [mca3]> INSERT INTO sales
    -> (OrderID, OrderDate, OrderPrice, OrderQuantity, CustomerName) VALUES
    -> (1, '2005-12-22', 160, 2, 'Smith'),
    -> (2, '2005-08-10', 190, 2, 'Johnson'),
    -> (3, '2005-07-13', 500, 5, 'Baldwin'),
    -> (4, '2005-07-15', 420,2, 'Smith'),
    -> (5, '2005-12-22', 1000, 4, 'Wood'),
    -> (6,'2005-10-02', 820, 4, 'Smith'),
    -> (7, '2005-11-03', 2000, 2, 'Baldwin'),
    -> (8, '2002-12-22', 1000, 4, 'Wood'),
    -> (9, '2004-12-29', 5000, 4, 'Smith') ;
Query OK, 9 rows affected (0.009 sec)
Records: 9  Duplicates: 0  Warnings: 0

MariaDB [mca3]> SELECT * FROM sales;
+---------+------------+------------+---------------+--------------+
| OrderID | OrderDate  | OrderPrice | OrderQuantity | CustomerName |
+---------+------------+------------+---------------+--------------+
|       1 | 2005-12-22 |        160 |             2 | Smith        |
|       2 | 2005-08-10 |        190 |             2 | Johnson      |
|       3 | 2005-07-13 |        500 |             5 | Baldwin      |
|       4 | 2005-07-15 |        420 |             2 | Smith        |
|       5 | 2005-12-22 |       1000 |             4 | Wood         |
|       6 | 2005-10-02 |        820 |             4 | Smith        |
|       7 | 2005-11-03 |       2000 |             2 | Baldwin      |
|       8 | 2002-12-22 |       1000 |             4 | Wood         |
|       9 | 2004-12-29 |       5000 |             4 | Smith        |
+---------+------------+------------+---------------+--------------+
9 rows in set (0.000 sec)
```

CREATE TABLE products (
Product_id VARCHAR(10) NOT NULL,
OrderId INT(10) NOT NULL,
Manufacture_Date DATE NOT NULL,
Raw_Material VARCHAR (20) NOT NULL,

Vendor_Id INT NOT NULL,
PRIMARY KEY (Product_id)) ;

```
MariaDB [mca3]> CREATE TABLE products (
    -> Product_id VARCHAR(10) NOT NULL,
    -> OrderId INT(10) NOT NULL,
    -> Manufacture_Date DATE NOT NULL,
    -> Raw_Material VARCHAR (20) NOT NULL,
    -> Vendor_Id INT NOT NULL,
    -> PRIMARY KEY (Product_id) )
    -> ;
Query OK, 0 rows affected (0.018 sec)

MariaDB [mca3]> DESC products;
+------------------+-------------+------+-----+---------+-------+
| Field            | Type        | Null | Key | Default | Extra |
+------------------+-------------+------+-----+---------+-------+
| Product_id       | varchar(10) | NO   | PRI | NULL    |       |
| OrderId          | int(10)     | NO   |     | NULL    |       |
| Manufacture_Date | date        | NO   |     | NULL    |       |
| Raw_Material     | varchar(20) | NO   |     | NULL    |       |
| Vendor_Id        | int(11)     | NO   |     | NULL    |       |
+------------------+-------------+------+-----+---------+-------+
5 rows in set (0.015 sec)
```

INSERT INTO products
(Product_id, OrderId, Manufacture_Date, Raw_Material, Vendor_Id) VALUES
('AZ145', 2, '2005-12-23', 'Steel' ,1),
('CS784', 4, '2005-11-28', 'Plastic' ,2),
('AZ147', 6, '2002-8-15', 'Steel' ,3),
('FD344', 3, '2005-11-3', 'Milk' ,1),
('GR233', 3, '2005-11-30', 'Pulses' ,2),
('FD123', 2, '2005-10-3', 'Milk' ,2),
('CS783', 1, '2004-11-3', 'Plastic' ,2),
('CS435', 5, '2001-11-4', 'Steel' ,1),
('GR567', 6, '2005-9-3', 'Pulses' ,2),
('FD267', 5, '2002-12-3', 'Bread' ,4),
('FD333', 9, '2005-12-12', 'Milk' ,1);

```
MariaDB [mca3]> INSERT INTO products
    -> (Product_id, OrderId, Manufacture_Date, Raw_Material, Vendor_Id) VALUES
    -> ('AZ145', 2, '2005-12-23', 'Steel' ,1),
    -> ('CS784', 4, '2005-11-28', 'Plastic' ,2),
    -> ('AZ147', 6, '2002-8-15', 'Steel' ,3),
    -> ('FD344', 3, '2005-11-3', 'Milk' ,1),
    -> ('GR233', 3, '2005-11-30', 'Pulses' ,2),
    -> ('FD123', 2, '2005-10-3', 'Milk' ,2),
    -> ('CS783', 1, '2004-11-3', 'Plastic' ,2),
    -> ('CS435', 5, '2001-11-4', 'Steel' ,1),
    -> ('GR567', 6, '2005-9-3', 'Pulses' ,2),
    -> ('FD267', 5, '2002-12-3', 'Bread' ,4),
    ->  ('FD333', 9, '2005-12-12', 'Milk' ,1);
Query OK, 11 rows affected (0.008 sec)
Records: 11  Duplicates: 0  Warnings: 0

MariaDB [mca3]> SELECT * FROM products;
+------------+---------+------------------+--------------+-----------+
| Product_id | OrderId | Manufacture_Date | Raw_Material | Vendor_Id |
+------------+---------+------------------+--------------+-----------+
| AZ145      |       2 | 2005-12-23       | Steel        |         1 |
| AZ147      |       6 | 2002-08-15       | Steel        |         3 |
| CS435      |       5 | 2001-11-04       | Steel        |         1 |
| CS783      |       1 | 2004-11-03       | Plastic      |         2 |
| CS784      |       4 | 2005-11-28       | Plastic      |         2 |
| FD123      |       2 | 2005-10-03       | Milk         |         2 |
| FD267      |       5 | 2002-12-03       | Bread        |         4 |
| FD333      |       9 | 2005-12-12       | Milk         |         1 |
| FD344      |       3 | 2005-11-03       | Milk         |         1 |
| GR233      |       3 | 2005-11-30       | Pulses       |         2 |
| GR567      |       6 | 2005-09-03       | Pulses       |         2 |
+------------+---------+------------------+--------------+-----------+
11 rows in set (0.000 sec)
```

CREATE TABLE vendor_info (
Vendor_id INT(5) NOT NULL,
Vendor_name VARCHAR(50) NOT NULL,
PRIMARY KEY (Vendor_id));

```
MariaDB [mca3]> CREATE TABLE vendor_info (
    -> Vendor_id INT(5) NOT NULL,
    -> Vendor_name VARCHAR(50) NOT NULL,
    -> PRIMARY KEY (Vendor_id) );
Query OK, 0 rows affected (0.019 sec)

MariaDB [mca3]> DESC vendor_info;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| Vendor_id   | int(5)      | NO   | PRI | NULL    |       |
| Vendor_name | varchar(50) | NO   |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
2 rows in set (0.016 sec)
```

```
INSERT INTO vendor_info
(Vendor_id, Vendor_name) VALUES
(1, 'Smith'),
(2, 'Wills'),
(3, 'Johnson'),
(4, 'Roger');
```

```
MariaDB [mca3]> INSERT INTO vendor_info
    -> (Vendor_id, Vendor_name) VALUES
    -> (1, 'Smith'),
    -> (2, 'Wills'),
    -> (3, 'Johnson'),
    -> (4, 'Roger');
Query OK, 4 rows affected (0.008 sec)
Records: 4  Duplicates: 0  Warnings: 0

MariaDB [mca3]> SELECT * FROM vendor_info;
+-----------+-------------+
| Vendor_id | Vendor_name |
+-----------+-------------+
|         1 | Smith       |
|         2 | Wills       |
|         3 | Johnson     |
|         4 | Roger       |
+-----------+-------------+
```

```
CREATE TABLE vendors(
Raw_Material VARCHAR(20) NOT NULL,
Vendors VARCHAR(50) NOT NULL,
Vendor_Id INT(11) NOT NULL ) ;
```

```
MariaDB [mca3]> CREATE TABLE vendors(
    -> Raw_Material VARCHAR(20) NOT NULL,
    -> Vendors VARCHAR(50) NOT NULL,
    -> Vendor_Id INT(11) NOT NULL ) ;
Query OK, 0 rows affected (0.013 sec)

MariaDB [mca3]> DESC vendors;
+--------------+-------------+------+-----+---------+-------+
| Field        | Type        | Null | Key | Default | Extra |
+--------------+-------------+------+-----+---------+-------+
| Raw_Material | varchar(20) | NO   |     | NULL    |       |
| Vendors      | varchar(50) | NO   |     | NULL    |       |
| Vendor_Id    | int(11)     | NO   |     | NULL    |       |
+--------------+-------------+------+-----+---------+-------+
3 rows in set (0.005 sec)
```

```
INSERT INTO vendors
(Raw_material, Vendors, Vendor_id) VALUES
('Steel', 'Smith', 1),
('Plastic', 'Wills', 2),
('Steel', 'Johnson', 3),
('Milk', 'Smith', 1),
('Pulses', 'Wills', 2),
('Bread', 'Rogers', 4),
('Bread', 'Wills', 2),
('Milk', 'Wills', 2);
```

```
MariaDB [mca3]> INSERT INTO vendors
    -> (Raw_material, Vendors, Vendor_id) VALUES
    -> ('Steel', 'Smith', 1),
    -> ('Plastic', 'Wills', 2),
    -> ('Steel', 'Johnson', 3),
    -> ('Milk', 'Smith', 1),
    -> ('Pulses', 'Wills', 2),
    -> ('Bread', 'Rogers', 4),
    -> ('Bread', 'Wills', 2),
    -> ('Milk', 'Wills', 2);
Query OK, 8 rows affected (0.001 sec)
Records: 8  Duplicates: 0  Warnings: 0

MariaDB [mca3]> SELECT * FROM vendors;
+--------------+---------+-----------+
| Raw_Material | Vendors | Vendor_Id |
+--------------+---------+-----------+
| Steel        | Smith   |         1 |
| Plastic      | Wills   |         2 |
| Steel        | Johnson |         3 |
| Milk         | Smith   |         1 |
| Pulses       | Wills   |         2 |
| Bread        | Rogers  |         4 |
| Bread        | Wills   |         2 |
| Milk         | Wills   |         2 |
+--------------+---------+-----------+
8 rows in set (0.000 sec)
```

1. Display product information which are ordered in the same year of its manufacturing year.

```
select p.* from products p, sales s
where year(p.Manufacture_date) = year(s.OrderDate) and p.OrderId = s.OrderId ;
```

```
MariaDB [mca3]> select p.* from products p, sales s
    -> where year(p.Manufacture_date) = year(s.OrderDate) and p.OrderId = s.OrderId ;
+------------+---------+------------------+--------------+-----------+
| Product_id | OrderId | Manufacture_Date | Raw_Material | Vendor_Id |
+------------+---------+------------------+--------------+-----------+
| AZ145      |       2 | 2005-12-23       | Steel        |         1 |
| CS784      |       4 | 2005-11-28       | Plastic      |         2 |
| FD123      |       2 | 2005-10-03       | Milk         |         2 |
| FD344      |       3 | 2005-11-03       | Milk         |         1 |
| GR233      |       3 | 2005-11-30       | Pulses       |         2 |
| GR567      |       6 | 2005-09-03       | Pulses       |         2 |
+------------+---------+------------------+--------------+-----------+
6 rows in set (0.037 sec)
```

2. Display product information which are ordered in the same year of its manufacturing year where vendor is “smith".

```
SELECT p.* FROM products p, sales s
WHERE year(p.Manufacture_date) = year(s.OrderDate) AND
p.OrderId = s.OrderId AND
p.Vendor_Id = (SELECT Vendor_id FROM vendor_info WHERE Vendor_name = 'Smith');
```

```
MariaDB [mca3]> SELECT p.* FROM products p, sales s
    -> WHERE year(p.Manufacture_date) = year(s.OrderDate) AND
    -> p.OrderId = s.OrderId AND
    -> p.Vendor_Id = (SELECT Vendor_id FROM vendor_info WHERE Vendor_name = 'Smith');
+------------+---------+------------------+--------------+-----------+
| Product_id | OrderId | Manufacture_Date | Raw_Material | Vendor_Id |
+------------+---------+------------------+--------------+-----------+
| AZ145      |       2 | 2005-12-23       | Steel        |         1 |
| FD344      |       3 | 2005-11-03       | Milk         |         1 |
+------------+---------+------------------+--------------+-----------+
2 rows in set (0.011 sec)
```

3. Display total no. of orders placed in each year.

```
SELECT sum(OrderQuantity) AS sum,
year(OrderDate) FROM  sales
GROUP BY year(OrderDate);
```

```
MariaDB [mca3]> SELECT sum(OrderQuantity) AS sum,
    -> year(OrderDate) FROM sales
    -> GROUP BY year(OrderDate);
+------+-----------------+
| sum  | year(OrderDate) |
+------+-----------------+
|    4 |            2002 |
|    4 |            2004 |
|   21 |            2005 |
+------+-----------------+
3 rows in set (0.008 sec)
```

4. Display total no. of orders placed in each year by vendor Wills.

```
SELECT count(*), year(a.OrderDate)
FROM sales a, products b
WHERE a.OrderID = b.OrderID AND
b.Vendor_Id=(SELECT Vendor_id FROM vendor_info WHERE Vendor_name = 'Wills')
GROUP BY year(a.OrderDate);
```

```
MariaDB [mca3]> SELECT count(*), year(a.OrderDate)
    -> FROM sales a, products b
    -> WHERE a.OrderID = b.OrderID AND
    -> b.Vendor_Id=(SELECT Vendor_id FROM vendor_info WHERE Vendor_name = 'Wills')
    -> GROUP BY year(a.OrderDate);
+----------+-------------------+
| count(*) | year(a.OrderDate) |
+----------+-------------------+
|        5 |              2005 |
+----------+-------------------+
1 row in set (0.001 sec)
```

5. Display the name of all those persons who are vendors and customers both.

```
SELECT DISTINCT CustomerName AS Person FROM Sales S, Vendor_info V
WHERE V.Vendor_name=S.CustomerName;
```

```
MariaDB [mca3]> SELECT DISTINCT CustomerName AS Person FROM Sales S, Vendor_info V
    -> WHERE V.Vendor_name=S.CustomerName;
+---------+
| Person  |
+---------+
| Smith   |
| Johnson |
+---------+
2 rows in set (0.001 sec)
```

6. Display total no. of food items ordered every year.

```
SELECT year(OrderDate) AS year, sum(OrderQuantity) AS Food_Quantity FROM sales
GROUP BY year(OrderDate);
```

```
MariaDB [mca3]> SELECT year(OrderDate) AS year, sum(OrderQuantity) AS Food_Quantity FROM sales
    -> GROUP BY year(OrderDate);
+------+---------------+
| year | Food_Quantity |
+------+---------------+
| 2002 |             4 |
| 2004 |             4 |
| 2005 |            21 |
+------+---------------+
3 rows in set (0.027 sec)
```

7. Display total no. of food items ordered every year made from Bread.

```
SELECT year(OrderDate) AS year, sum(OrderQuantity) AS Food_Quantity FROM sales
WHERE OrderId IN (SELECT OrderId FROM products WHERE Raw_Material = 'Bread')
GROUP BY year(OrderDate);
```

```
MariaDB [mca3]> SELECT year(OrderDate) AS year, sum(OrderQuantity) AS Food_Quantity FROM sales
    -> WHERE OrderId IN (SELECT OrderId FROM products WHERE Raw_Material = 'Bread')
    -> GROUP BY year(OrderDate);
+------+---------------+
| year | Food_Quantity |
+------+---------------+
| 2005 |             4 |
+------+---------------+
1 row in set (0.019 sec)
```

8. Display list of product_id whose vendor and customer is different.

```
SELECT a.Product_id from products a, vendor_info b, sales c
where c.OrderID=a.OrderId AND
a.Vendor_Id=b.vendor_id AND
b.vendor_name != c.CustomerName;
```

```
MariaDB [mca3]> SELECT a.Product_id from products a, vendor_info b, sales c
    -> where c.OrderID=a.OrderId AND
    -> a.Vendor_Id=b.vendor_id AND
    -> b.vendor_name != c.CustomerName;
+------------+
| Product_id |
+------------+
| AZ145      |
| CS435      |
| FD344      |
| CS783      |
| CS784      |
| FD123      |
| GR233      |
| GR567      |
| AZ147      |
| FD267      |
+------------+
10 rows in set (0.007 sec)
```

9. Display all those customers who are ordering products of milk by smith.

```
SELECT a.CustomerName from sales a, products b, vendor_info c
WHERE a.OrderID = b.OrderId AND
b.Vendor_Id = c.Vendor_id AND
c.Vendor_name = 'Smith' AND
b.Raw_Material = 'Milk';
```

```
MariaDB [mca3]> SELECT a.CustomerName from sales a, products b, vendor_info c
    -> WHERE a.OrderID = b.OrderId AND
    -> b.Vendor_Id = c.Vendor_id AND
    -> c.Vendor_name = 'Smith' AND
    -> b.Raw_Material = 'Milk';
+--------------+
| CustomerName |
+--------------+
| Smith        |
| Baldwin      |
+--------------+
2 rows in set (0.001 sec)
```

10. Display total no. of orders by each vendor every year.

```
SELECT sum(c.OrderQuantity) AS Total_Orders, b.Vendor_name, year(c.OrderDate) AS Year
From products a, vendor_info b, sales c
WHERE c.OrderID=a.OrderId AND
a.Vendor_Id = b.Vendor_id
GROUP BY Vendor_name, year(OrderDate);
```

```
MariaDB [mca3]> SELECT sum(c.OrderQuantity) AS Total_Orders, b.Vendor_name, year(c.OrderDate) AS Year
    -> From products a, vendor_info b, sales c
    -> WHERE c.OrderID=a.OrderId AND
    -> a.Vendor_Id = b.Vendor_id
    -> GROUP BY Vendor_name, year(OrderDate);
+--------------+-------------+------+
| Total_Orders | Vendor_name | Year |
+--------------+-------------+------+
|            4 | Johnson     | 2005 |
|            4 | Roger       | 2005 |
|            4 | Smith       | 2004 |
|           11 | Smith       | 2005 |
|           15 | Wills       | 2005 |
+--------------+-------------+------+
5 rows in set (0.001 sec)
```