27/7/2020 **DBMS Lab** Sanjay Rawat(7341)

**Assignment No. 3 (Table, View, Index,)**

**Title:** Design and Develop SQL DDL statements which demonstrate the use of SQL objects such as Table, View, Index.

**View**

* **Create table Employees and Departments as shown below:**

(Use emp\_id as primary key for employees table and dept\_id as a primary key for departments table)

|  |  |  |  |
| --- | --- | --- | --- |
| emp\_id | emp\_name | salary | dept\_id |
| 1 | Ethan Hunt | 5000 | 4 |
| 2 | Tony Montana | 6500 | 1 |
| 3 | Sarah Connor | 8000 | 5 |
| 4 | Rick Deckard | 7200 | 3 |
| 5 | Martin Blank | 5600 | NULL |

|  |  |
| --- | --- |
| dept\_id | Dept\_name |
| 1 | Administration |
| 2 | Customer Service |
| 3 | Finance |
| 4 | Human Resources |
| 5 | Sales |

mysql> create database Assgn3;

Query OK, 1 row affected (0.59 sec)

mysql> show databases;

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

| Database |

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

| assgn3 |

| information\_schema |

| mysql |

| performance\_schema |

| person |

| sakila |

| southwind |

| sys |

| test |

| world |

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

10 rows in set (0.00 sec)

mysql> use Assgn3;

Database changed

mysql> CREATE TABLE EMPLOYEE(

-> Emp\_ID int PRIMARY KEY,

-> Emp\_Name varchar(30),

-> Salary int

-> );

Query OK, 0 rows affected (0.62 sec)

mysql> CREATE TABLE DEPARTMENT(

-> Dept\_ID int PRIMARY KEY,

-> Dept\_Name varchar(30)

-> );

mysql> ALTER TABLE EMPLOYEE add Dept\_ID int;

Query OK, 0 rows affected (0.62 sec)

Records: 0 Duplicates: 0 Warnings: 0

mysql> ALTER TABLE EMPLOYEE add FOREIGN KEY(Dept\_ID) REFERENCES DEPARTMENT(Dept\_ID);

Query OK, 0 rows affected (1.81 sec)

Records: 0 Duplicates: 0 Warnings: 0

mysql> INSERT into DEPARTMENT(Dept\_ID,Dept\_Name) values

-> (1,'Administration'),

-> (2,'Customer Service'),

-> (3,'Finance'),

-> (4,'Human Resource'),

-> (5,'Sales')

-> ;

Query OK, 5 rows affected (0.25 sec)

Records: 5 Duplicates: 0 Warnings: 0

mysql> INSERT into EMPLOYEE(Emp\_ID,Emp\_Name,Salary,Dept\_ID) values

-> (1,'Ethan Hunt',5000,4),

-> (2,'Tony Montana',6500,1),

-> (3,'Sarah Connot',8000,5),

-> (4,'Rick Deckard',7200,3),

-> (5,'Martin Blank',5600,NULL)

-> ;

Query OK, 5 rows affected (0.29 sec)

Records: 5 Duplicates: 0 Warnings: 0

mysql> SELECT \* FROM EMPLOYEE;

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

| Emp\_ID | Emp\_Name | Salary | Dept\_ID |

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

| 1 | Ethan Hunt | 5000 | 4 |

| 2 | Tony Montana | 6500 | 1 |

| 3 | Sarah Connot | 8000 | 5 |

| 4 | Rick Deckard | 7200 | 3 |

| 5 | Martin Blank | 5600 | NULL |

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

5 rows in set (0.02 sec)

mysql> SELECT \* FROM DEPARTMENT;

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

| Dept\_ID | Dept\_Name |

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

| 1 | Administration |

| 2 | Customer Service |

| 3 | Finance |

| 4 | Human Resource |

| 5 | Sales |

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

5 rows in set (0.00 sec)

* **Execute the following queries in MySQL:**

1. Retrieve the id and name of the employees along with their department name (Use Left Join)

**SELECT t1.emp\_id, t1.emp\_name, t2.dept\_name**

**FROM employees AS t1 LEFT JOIN departments AS t2**

**ON t1.dept\_id = t2.dept\_id;**

mysql> SELECT t1.Emp\_ID,t1.Emp\_Name,t2.Dept\_name FROM EMPLOYEE as t1 LEFT JOIN DEPARTMENT as t2 on t1.Dept\_ID=t2.Dept\_id;

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

| Emp\_ID | Emp\_Name | Dept\_name |

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

| 1 | Ethan Hunt | Human Resource |

| 2 | Tony Montana | Administration |

| 3 | Sarah Connot | Sales |

| 4 | Rick Deckard | Finance |

| 5 | Martin Blank | NULL |

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

5 rows in set (0.04 sec)

mysql> SELECT t1.Emp\_ID,t1.Emp\_Name,t2.Dept\_name FROM EMPLOYEE as t1 RIGHT JOIN DEPARTMENT as t2 on t1.Dept\_ID=t2.Dept\_id;

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

| Emp\_ID | Emp\_Name | Dept\_name |

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

| 2 | Tony Montana | Administration |

| NULL | NULL | Customer Service |

| 4 | Rick Deckard | Finance |

| 1 | Ethan Hunt | Human Resource |

| 3 | Sarah Connot | Sales |

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

5 rows in set (0.00 sec)

mysql> SELECT t1.Emp\_ID,t1.Emp\_Name,t2.Dept\_name FROM EMPLOYEE as t1 JOIN DEPARTMENT as t2 on t1.Dept\_ID=t2.Dept\_id;

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

| Emp\_ID | Emp\_Name | Dept\_name |

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

| 1 | Ethan Hunt | Human Resource |

| 2 | Tony Montana | Administration |

| 3 | Sarah Connot | Sales |

| 4 | Rick Deckard | Finance |

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

4 rows in set (0.00 sec)

mysql> SELECT t1.Emp\_ID,t1.Emp\_Name,t2.Dept\_name FROM EMPLOYEE as t1 JOIN DEPARTMENT as t2 ;

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

| Emp\_ID | Emp\_Name | Dept\_name |

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

| 1 | Ethan Hunt | Administration |

| 2 | Tony Montana | Administration |

| 3 | Sarah Connot | Administration |

| 4 | Rick Deckard | Administration |

| 5 | Martin Blank | Administration |

| 1 | Ethan Hunt | Customer Service |

| 2 | Tony Montana | Customer Service |

| 3 | Sarah Connot | Customer Service |

| 4 | Rick Deckard | Customer Service |

| 5 | Martin Blank | Customer Service |

| 1 | Ethan Hunt | Finance |

| 2 | Tony Montana | Finance |

| 3 | Sarah Connot | Finance |

| 4 | Rick Deckard | Finance |

| 5 | Martin Blank | Finance |

| 1 | Ethan Hunt | Human Resource |

| 2 | Tony Montana | Human Resource |

| 3 | Sarah Connot | Human Resource |

| 4 | Rick Deckard | Human Resource |

| 5 | Martin Blank | Human Resource |

| 1 | Ethan Hunt | Sales |

| 2 | Tony Montana | Sales |

| 3 | Sarah Connot | Sales |

| 4 | Rick Deckard | Sales |

| 5 | Martin Blank | Sales |

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

25 rows in set (0.00 sec)

mysql> SELECT t1.Emp\_ID,t1.Emp\_Name,t2.Dept\_name FROM EMPLOYEE as t1 INNER JOIN DEPARTMENT as t2 ;

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

| Emp\_ID | Emp\_Name | Dept\_name |

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

| 1 | Ethan Hunt | Administration |

| 2 | Tony Montana | Administration |

| 3 | Sarah Connot | Administration |

| 4 | Rick Deckard | Administration |

| 5 | Martin Blank | Administration |

| 1 | Ethan Hunt | Customer Service |

| 2 | Tony Montana | Customer Service |

| 3 | Sarah Connot | Customer Service |

| 4 | Rick Deckard | Customer Service |

| 5 | Martin Blank | Customer Service |

| 1 | Ethan Hunt | Finance |

| 2 | Tony Montana | Finance |

| 3 | Sarah Connot | Finance |

| 4 | Rick Deckard | Finance |

| 5 | Martin Blank | Finance |

| 1 | Ethan Hunt | Human Resource |

| 2 | Tony Montana | Human Resource |

| 3 | Sarah Connot | Human Resource |

| 4 | Rick Deckard | Human Resource |

| 5 | Martin Blank | Human Resource |

| 1 | Ethan Hunt | Sales |

| 2 | Tony Montana | Sales |

| 3 | Sarah Connot | Sales |

| 4 | Rick Deckard | Sales |

| 5 | Martin Blank | Sales |

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

25 rows in set (0.00 sec)

1. Create View for the above query.

mysql> CREATE VIEW v1 as SELECT \*FROM DEPARTMENT;

Query OK, 0 rows affected (0.54 sec)

1. Retrieve records from the above created view.

mysql> SELECT \* FROM v1;

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

| Dept\_ID | Dept\_Name |

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

| 1 | Administration |

| 2 | Customer Service |

| 3 | Finance |

| 4 | Human Resource |

| 5 | Sales |

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

5 rows in set (0.08 sec)

mysql> desc v1;

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

| Field | Type | Null | Key | Default | Extra |

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

| Dept\_ID | int | NO | | NULL | |

| Dept\_Name | varchar(20) | YES | | NULL | |

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

2 rows in set (0.20 sec)

mysql> show tables;

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

| Tables\_in\_assgn3 |

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

| department |

| employee |

| v1 |

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

3 rows in set (0.06 sec)

mysql> CREATE VIEW v2 as SELECT \*FROM EMPLOYEE;

Query OK, 0 rows affected (0.14 sec)

mysql> SELECT \* FROM v2;

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

| Emp\_ID | Emp\_Name | Salary | Dept\_ID |

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

| 1 | Ethan Hunt | 5000 | 4 |

| 2 | Tony Montana | 6500 | 1 |

| 3 | Sarah Connot | 8000 | 5 |

| 4 | Rick Deckard | 7200 | 3 |

| 5 | Martin Blank | 5600 | NULL |

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

5 rows in set (0.00 sec)

mysql> desc v2;

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

| Field | Type | Null | Key | Default | Extra |

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

| Emp\_ID | int | NO | | NULL | |

| Emp\_Name | varchar(30) | YES | | NULL | |

| Salary | int | YES | | NULL | |

| Dept\_ID | int | YES | | NULL | |

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

4 rows in set (0.00 sec)

mysql> show tables;

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

| Tables\_in\_assgn3 |

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

| department |

| employee |

| v1 |

| v2 |

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

4 rows in set (0.00 sec)

1. Replace the above view to show emp\_id, .emp\_name, dept\_name salary also.

mysql> CREATE VIEW Q as SELECT e.Emp\_ID,e.Emp\_Name,e.Salary,d.Dept\_Name FROM EMPLOYEE as e LEFT JOIN DEPARTMENT as d on e.Dept\_ID=d.Dept\_ID;

Query OK, 0 rows affected (0.09 sec)

mysql> SELECT \*FROM Q;

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

| Emp\_ID | Emp\_Name | Salary | Dept\_Name |

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

| 1 | Ethan Hunt | 6000 | Human Resource |

| 2 | Tony Montana | 6500 | Administration |

| 3 | Sarah Connot | 8000 | Sales |

| 4 | Rick Deckard | 7200 | Finance |

| 5 | Martin Blank | 5600 | NULL |

| 6 | Sanjay | 8000 | Sales |

| 7 | Atul | 10000 | Finance |

| 8 | Anish | 12000 | NULL |

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

8 rows in set (0.00 sec)

1. Insert 3 more records in above created view.

mysql> INSERT INTO v2 values

-> (6,'Sanjay',8000,5),

-> (7,'Atul',10000,3),

->

-> (8,'Anish',12000,NULL)

-> ;

Query OK, 3 rows affected (0.10 sec)

Records: 3 Duplicates: 0 Warnings: 0

mysql> SELECT\*FROM v2;

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

| Emp\_ID | Emp\_Name | Salary | Dept\_ID |

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

| 1 | Ethan Hunt | 5000 | 4 |

| 2 | Tony Montana | 6500 | 1 |

| 3 | Sarah Connot | 8000 | 5 |

| 4 | Rick Deckard | 7200 | 3 |

| 5 | Martin Blank | 5600 | NULL |

| 6 | Sanjay | 8000 | 5 |

| 7 | Atul | 10000 | 3 |

| 8 | Anish | 12000 | NULL |

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

8 rows in set (0.00 sec)

mysql> SELECT\*FROM EMPLOYEE;

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

| Emp\_ID | Emp\_Name | Salary | Dept\_ID |

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

| 1 | Ethan Hunt | 5000 | 4 |

| 2 | Tony Montana | 6500 | 1 |

| 3 | Sarah Connot | 8000 | 5 |

| 4 | Rick Deckard | 7200 | 3 |

| 5 | Martin Blank | 5600 | NULL |

| 6 | Sanjay | 8000 | 5 |

| 7 | Atul | 10000 | 3 |

| 8 | Anish | 12000 | NULL |

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

8 rows in set (0.00 sec)

1. Update the above view to set salary =6000 for the employee having emp\_id 1.

mysql> UPDATE v2 SET Salary=6000 where Emp\_Id=1;

Query OK, 1 row affected (0.13 sec)

Rows matched: 1 Changed: 1 Warnings: 0

mysql> SELECT \*FROM v2;

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

| Emp\_ID | Emp\_Name | Salary | Dept\_ID |

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

| 1 | Ethan Hunt | 6000 | 4 |

| 2 | Tony Montana | 6500 | 1 |

| 3 | Sarah Connot | 8000 | 5 |

| 4 | Rick Deckard | 7200 | 3 |

| 5 | Martin Blank | 5600 | NULL |

| 6 | Sanjay | 8000 | 5 |

| 7 | Atul | 10000 | 3 |

| 8 | Anish | 12000 | NULL |

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

8 rows in set (0.00 sec)

mysql> SELECT \*FROM EMPLOYEE;

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

| Emp\_ID | Emp\_Name | Salary | Dept\_ID |

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

| 1 | Ethan Hunt | 6000 | 4 |

| 2 | Tony Montana | 6500 | 1 |

| 3 | Sarah Connot | 8000 | 5 |

| 4 | Rick Deckard | 7200 | 3 |

| 5 | Martin Blank | 5600 | NULL |

| 6 | Sanjay | 8000 | 5 |

| 7 | Atul | 10000 | 3 |

| 8 | Anish | 12000 | NULL |

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

8 rows in set (0.00 sec)

1. Retrieve the record from view where dept\_id of employees is NULL.

mysql> SELECT \*FROM v2 where Dept\_ID IS NULL;

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

| Emp\_ID | Emp\_Name | Salary | Dept\_ID |

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

| 5 | Martin Blank | 5600 | NULL |

| 8 | Anish | 12000 | NULL |

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

2 rows in set (0.03 sec)

mysql> SELECT \*FROM v2 where Dept\_ID=NULL;

Empty set (0.04 sec)

mysql> SELECT \*FROM v2 where Dept\_ID LIKE NULL;

Empty set (0.04 sec)

1. Delete those records from view where employee salary is 8000.

mysql> DELETE FROM v2 where Salary=8000;

Query OK, 2 rows affected (0.21 sec)

mysql> SELECT \*FROM v2;

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

| Emp\_ID | Emp\_Name | Salary | Dept\_ID |

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

| 1 | Ethan Hunt | 6000 | 4 |

| 2 | Tony Montana | 6500 | 1 |

| 4 | Rick Deckard | 7200 | 3 |

| 5 | Martin Blank | 5600 | NULL |

| 7 | Atul | 10000 | 3 |

| 8 | Anish | 12000 | NULL |

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

6 rows in set (0.00 sec)

mysql> SELECT \*FROM EMPLOYEE;

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

| Emp\_ID | Emp\_Name | Salary | Dept\_ID |

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

| 1 | Ethan Hunt | 6000 | 4 |

| 2 | Tony Montana | 6500 | 1 |

| 4 | Rick Deckard | 7200 | 3 |

| 5 | Martin Blank | 5600 | NULL |

| 7 | Atul | 10000 | 3 |

| 8 | Anish | 12000 | NULL |

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

6 rows in set (0.00 sec)

1. Drop the above created view.

mysql> Drop VIEW V;

Query OK, 0 rows affected (0.15 sec)

mysql> show tables;

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

| Tables\_in\_assgn3 |

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

| department |

| employee |

| q |

| v1 |

| v2 |

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

5 rows in set (0.00 sec)

mysql> Drop VIEW Q;

Query OK, 0 rows affected (0.14 sec)

mysql> Drop VIEW v1;

Query OK, 0 rows affected (0.09 sec)

mysql> Drop VIEW v2;

Query OK, 0 rows affected (0.14 sec)

mysql> show tables;

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

| Tables\_in\_assgn3 |

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

| department |

| employee |

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

2 rows in set (0.00 sec)

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