Pranjal Jatav : 0801IT211064

ASSIGNMENT 5

Table Name : Warehouses

Attribute	Data Type	Primary Key	Foreign Key	Constraint
Code	Int	Y		Not Null
Location	Varchar			Not Null
Capacity	Int			Not Null

```
mysql> create table Warehouses(
    -> code int(10) primary key NOT NULL,
    -> location varchar(20) NOT NULL,
    -> capacity int(10) NOT NULL
    -> );
```

```
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| code     | int         | NO   | PRI | NULL    |       |
| location | varchar(20) | NO   |     | NULL    |       |
| capacity | int         | NO   |     | NULL    |       |
+----------+-------------+------+-----+---------+-------+
```

Insert following data into Warehouse

Code	Location	Capacity
1	Chicago	3
2	Chicago	4
3	New York	7
4	Los Angeles	2
5	San Francisco	8

```
mysql> insert into Warehouses
    -> values
    -> ('1','Chicago','3'),
    -> ('2','Chicago','4'),
    -> ('3','New York','7'),
    -> ('4','Los Angeles','2'),
    -> ('5','San Francisco','8');
mysql> select *from Warehouses;
```

```
+------+---------------+----------+
| code | location      | capacity |
+------+---------------+----------+
|    1 | Chicago       |        3 |
|    2 | Chicago       |        4 |
|    3 | New York      |        7 |
|    4 | Los Angeles   |        2 |
|    5 | San Francisco |        8 |
+------+---------------+----------+
5 rows in set (0.00 sec)
```

Table Name : Boxes

Attribute	Data Type	Primary Key	Foreign Key	Constraint
Code	Varchar	Y		Not Null
Contents	Varchar			Not Null
Value	Decimal			Not Null
Warehouse	Int		Warehouses(Code)	Not Null

```
mysql> create table Boxes(
    -> code varchar(10) primary key not null,
    -> contents varchar(10) not null,
    -> value decimal(10,2) not null,
    -> warehouse int(8) not null,
    -> foreign key (warehouse) references Warehouses(code)
    -> );
```

```
+-----------+---------------+------+-----+---------+-------+
| Field     | Type          | Null | Key | Default | Extra |
+-----------+---------------+------+-----+---------+-------+
| code      | varchar(10)   | NO   | PRI | NULL    |       |
| contents  | varchar(10)   | NO   |     | NULL    |       |
| value     | decimal(10,2) | NO   |     | NULL    |       |
| warehouse | int           | NO   | MUL | NULL    |       |
+-----------+---------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

Pranjal Jatav : 0801IT211064

Insert following data into Boxes

Code	Contents	Value	Warehouse
0MN7	Rocks	180	3
4H8P	Rocks	250	1
4RT3	Scissors	190	4
7G3H	Rocks	200	1
8JN6	Papers	75	1
8Y6U	Papers	50	3
9J6F	Papers	175	2
LL08	Rocks	140	4
P0H6	Scissors	125	1
P2T6	Scissors	150	2
TU55	Papers	90	5

```
mysql> insert into Boxes
    -> values
    -> ('0MN7','Rocks','180','3'),
    -> ('4H8P','Rocks','250','1'),
    -> ('4RT3','Scissors','190','4'),
    -> ('7G3H','Rocks','200','1'),
    -> ('8JN6','Papers','75','1'),
    -> ('8Y6U','Papers','50','3'),
    -> ('9J6F','Papers','175','2'),
    -> ('LL08','Rocks','140','4'),
    -> ('P0H6','Scissosrs','125','1'),
    -> ('P2T6','Scissors','150','2'),
    -> ('TU55','Papers','90','5');
```

```
mysql> select *from Boxes;
+------+-----------+--------+-----------+
| code | contents  | value  | warehouse |
+------+-----------+--------+-----------+
| 0MN7 | Rocks     | 180.00 |         3 |
| 4H8P | Rocks     | 250.00 |         1 |
| 4RT3 | Scissors  | 190.00 |         4 |
| 7G3H | Rocks     | 200.00 |         1 |
| 8JN6 | Papers    |  75.00 |         1 |
| 8Y6U | Papers    |  50.00 |         3 |
| 9J6F | Papers    | 175.00 |         2 |
| LL08 | Rocks     | 140.00 |         4 |
| P0H6 | Scissosrs | 125.00 |         1 |
| P2T6 | Scissors  | 150.00 |         2 |
| TU55 | Papers    |  90.00 |         5 |
+------+-----------+--------+-----------+
11 rows in set (0.00 sec)
```

Pranjal Jatav : 0801IT211064

1. Select all warehouses.
mysql> select distinct warehouse from Boxes;

```
+-----------+
| warehouse |
+-----------+
|         1 |
|         2 |
|         3 |
|         4 |
|         5 |
+-----------+
5 rows in set (0.00 sec)
```

2. Select all boxes with a value larger than $150. mysql> select code,contents
-> from Boxes
-> where value>150;

```
+------+----------+
| code | contents |
+------+----------+
| 0MN7 | Rocks    |
| 4H8P | Rocks    |
| 4RT3 | Scissors |
| 7G3H | Rocks    |
| 9J6F | Papers   |
+------+----------+
5 rows in set (0.00 sec)
```

3. Select all distinct content in all the boxes.
mysql> select distinct contents from Boxes;

```
+-----------+
| contents  |
+-----------+
| Rocks     |
| Scissors  |
| Papers    |
| Scissosrs |
+-----------+
4 rows in set (0.00 sec)
```

4. Select the average value of all boxes.
mysql> select avg(value) as avg_price from Boxes;

```
| avg_price  |
+------------+
| 147.727273 |
+------------+
1 row in set (0.00 sec)
```

5. Select the warehouse code and average value of the boxes in each warehouse. mysql> select w.code as warehouse_code,avg(b.value) as average_value
-> from Warehouses w
-> join Boxes b on w.code=b.warehouse
-> group by w.code;

```
+----------------+---------------+
| warehouse_code | average_value |
+----------------+---------------+
|              1 |    162.500000 |
|              2 |    162.500000 |
|              3 |    115.000000 |
|              4 |    165.000000 |
|              5 |     90.000000 |
+----------------+---------------+
5 rows in set (0.00 sec)
```

6. Same as previous excercise, but select only those warehouses where the average value of the boxes is greater than $150.
mysql> select w.code as warehouse_code,avg(b.value) as average_value
-> from Warehouses w
-> join Boxes b on w.code=b.warehouse
-> group by w.code
-> having avg(b.value)>150;

```
| warehouse_code | average_value |
+----------------+---------------+
|              1 |    162.500000 |
|              2 |    162.500000 |
|              4 |    165.000000 |
+----------------+---------------+
3 rows in set (0.00 sec)
```

7. Select the code of each box, along with the name of the city the box is located in.
```
mysql> select b.code as box_code,w.location as location
    -> from Boxes b
    -> join Warehouses w on b.warehouse=w.code;
+----------+---------------+
| box_code | location      |
+----------+---------------+
| 4H8P     | Chicago       |
| 7G3H     | Chicago       |
| 8JN6     | Chicago       |
| P0H6     | Chicago       |
| 9J6F     | Chicago       |
| P2T6     | Chicago       |
| 0MN7     | New York      |
| 8Y6U     | New York      |
| 4RT3     | Los Angeles   |
| LL08     | Los Angeles   |
| TU55     | San Francisco |
+----------+---------------+
11 rows in set (0.00 sec)
```

8. Select the warehouse codes, along with the number of boxes in each warehouse. Optionally, take into account that some warehouses are empty (i.e., the box count should show up as zero, instead of omitting the warehouse from the result).
```
mysql> select w.code as warehouse_code,count(b.code)as box_count
    -> from Warehouses w
    -> left join Boxes b on w.code=b.warehouse
    -> group by w.code;
+----------------+-----------+
| warehouse_code | box_count |
+----------------+-----------+
|              1 |         4 |
|              2 |         2 |
|              3 |         2 |
|              4 |         2 |
|              5 |         1 |
+----------------+-----------+
5 rows in set (0.00 sec)
```

9. Select the codes of all warehouses that are saturated (a warehouse is saturated if the number of boxes in it is larger than the warehouse's capacity).
```
mysql> select w.code as saturated_warehouseCode
    -> from Warehouses w
```

```
    -> join(
    -> select warehouse,count(*)as Box_count
    -> from Boxes
    -> group by warehouse
    -> ) b on w.code=b.warehouse
    -> where b.box_count > w.capacity;
```

```
+--------------------------+
| saturated_warehouseCode |
+--------------------------+
|                        1 |
+--------------------------+
1 row in set (0.00 sec)
```

10. Select the codes of all boxes located in chicago.

```
mysql> select b.code as box_code
    -> from Boxes b
    -> join Warehouses w on b.warehouse=w.code
    -> where w.location='Chicago';
```

```
+----------+
| box_code |
+----------+
| 4H8P     |
| 7G3H     |
| 8JN6     |
| P0H6     |
| 9J6F     |
| P2T6     |
+----------+
6 rows in set (0.00 sec)
```

11. Create a new warehouse in New York with a capacity of 3 Boxes.

```
mysql> insert into Warehouses
    -> values('6','New York','3');
mysql> select *from Warehouses;
```

```
+------+---------------+----------+
| code | location      | capacity |
+------+---------------+----------+
|    1 | Chicago       |        3 |
|    2 | Chicago       |        4 |
|    3 | New York      |        7 |
|    4 | Los Angeles   |        2 |
|    5 | San Francisco |        8 |
|    6 | New York      |        3 |
+------+---------------+----------+
6 rows in set (0.00 sec)
```

12. Reduce the value of all boxes by 15%.

```
mysql> update Boxes
    -> set value=value*0.85;
mysql> select code,value
    -> from Boxes;
```

```
+------+--------+
| code | value  |
+------+--------+
| 0MN7 | 153.00 |
| 4H8P | 212.50 |
| 4RT3 | 161.50 |
| 7G3H | 170.00 |
| 8JN6 |  63.75 |
| 8Y6U |  42.50 |
| 9J6F | 148.75 |
| LL08 | 119.00 |
| P0H6 | 106.25 |
| P2T6 | 127.50 |
| TU55 |  76.50 |
+------+--------+
11 rows in set (0.00 sec)
```

13. Create a new box with code “H5RT”, containing “papers” with a value of $200, and located in warehouse 2.

```
mysql> insert into Boxes
    -> values('H5RT','Papers','200','2');
mysql> select *from Boxes;
```

code	contents	value	warehouse
0MN7	Rocks	153.00	3
4H8P	Rocks	212.50	1
4RT3	Scissors	161.50	4
7G3H	Rocks	170.00	1
8JN6	Papers	63.75	1
8Y6U	Papers	42.50	3
9J6F	Papers	148.75	2
H5RT	Papers	200.00	2
LL08	Rocks	119.00	4
P0H6	Scissosrs	106.25	1
P2T6	Scissors	127.50	2
TU55	Papers	76.50	5

12 rows in set (0.00 sec)

14. Apply a 20% value reduction to boxes with a value larger than the average value of all boxes. mysql> update Boxes

```
-> set value=value*0.8
-> where value > (
-> select avg(value)
-> from(select value from Boxes) as box_values
-> );
```

code	contents	value	warehouse
0MN7	Rocks	122.40	3
4H8P	Rocks	170.00	1
4RT3	Scissors	129.20	4
7G3H	Rocks	136.00	1
8JN6	Papers	63.75	1
8Y6U	Papers	42.50	3
9J6F	Papers	119.00	2
H5RT	Papers	160.00	2
LL08	Rocks	119.00	4
P0H6	Scissosrs	106.25	1
P2T6	Scissors	127.50	2
TU55	Papers	76.50	5

12 rows in set (0.00 sec)

15. Remove all boxes with a value lower than $100.

```
mysql> delete from Boxes
    -> where value<100;
```

```
+------+-----------+--------+-----------+
| code | contents  | value  | warehouse |
+------+-----------+--------+-----------+
| 0MN7 | Rocks     | 122.40 |         3 |
| 4H8P | Rocks     | 170.00 |         1 |
| 4RT3 | Scissors  | 129.20 |         4 |
| 7G3H | Rocks     | 136.00 |         1 |
| 9J6F | Papers    | 119.00 |         2 |
| H5RT | Papers    | 160.00 |         2 |
| LL08 | Rocks     | 119.00 |         4 |
| P0H6 | Scissosrs | 106.25 |         1 |
| P2T6 | Scissors  | 127.50 |         2 |
+------+-----------+--------+-----------+
9 rows in set (0.00 sec)
```

16. Remove all boxes from saturated warehouse.

```
mysql> delete from Boxes
    -> where warehouse in(
    -> select w.code
    -> from warehouses w
    -> join(
    -> select warehouse,count(*) as box_count
    -> from boxes
    -> group by warehouse
    -> ) b on w.code =b.warehouse
    -> where b.box_count > w.capacity
    -> );
```

```
+------+-----------+--------+-----------+
| code | contents  | value  | warehouse |
+------+-----------+--------+-----------+
| 0MN7 | Rocks     | 122.40 |         3 |
| 4H8P | Rocks     | 170.00 |         1 |
| 4RT3 | Scissors  | 129.20 |         4 |
| 7G3H | Rocks     | 136.00 |         1 |
| 9J6F | Papers    | 119.00 |         2 |
| H5RT | Papers    | 160.00 |         2 |
| LL08 | Rocks     | 119.00 |         4 |
| P0H6 | Scissosrs | 106.25 |         1 |
| P2T6 | Scissors  | 127.50 |         2 |
+------+-----------+--------+-----------+
9 rows in set (0.00 sec)
```