

Enrollment No. : 0801IT221023

Name : Ankit Jain

**Shri G.S. Institute of Technology and Science, Indore Department Of  
Information Technology IT38513 (Database Management System)  
Lab Assignment : V**

```
CREATE DATABASE Ankit_Jain;
-- Creating the Warehouses table
CREATE TABLE Warehouses (
    Code INT PRIMARY KEY NOT NULL,
    Location VARCHAR(255) NOT NULL,
    Capacity INT NOT NULL
);

-- Creating the Boxes table
CREATE TABLE Boxes (
    Code VARCHAR(255) PRIMARY KEY NOT NULL,
    Contents VARCHAR(255) NOT NULL,
    Value DECIMAL(10,2) NOT NULL,
    Warehouse INT NOT NULL,
    FOREIGN KEY (Warehouse) REFERENCES Warehouses(Code) ON DELETE CASCADE
);

-- Inserting data into Warehouses table
INSERT INTO Warehouses (Code, Location, Capacity) VALUES
(1, 'Indore', 3),
(2, 'VijayNagar', 4),
(3, 'SGSITS', 7),
(4, 'Phoneix Citadel', 2),
(5, 'Crescent Water Park', 8);

-- Inserting data into Boxes table
INSERT INTO Boxes (Code, Contents, Value, Warehouse) 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', 'Scissors', 125, 1),
('P2T6', 'Scissors', 150, 2),
('TU55', 'Papers', 90, 5);
```

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1. Select all warehouses.

Ans: SELECT \* FROM Warehouses;

	Code	Location	Capacity
1	1	Indore	3
2	2	VijayNagar	4
3	3	SGSITS	7
4	4	Phoneix Citadel	2
5	5	Crescent Water Park	8

2. Select all boxes with a value larger than \$150.

Ans : SELECT \* FROM Boxes WHERE Value > 150;

	Code	Contents	Value	Warehouse
1	0MN7	Rocks	180.00	3
2	4H8P	Rocks	250.00	1
3	4RT3	Scissors	190.00	4
4	7G3H	Rocks	200.00	1
5	9J6F	Papers	175.00	2

3. Select all distinct content in all the boxes.

Ans : SELECT DISTINCT Contents FROM Boxes;

	Contents
1	Papers
2	Rocks
3	Scissors

4. Select the average value of all boxes.

Ans : SELECT AVG(Value) AS AverageValue FROM Boxes;

	AverageValue
1	147.727272

5. Select the warehouse code and average value of the boxes in each warehouse.

Ans : SELECT Warehouse, AVG(Value) AS AvgBoxValue FROM Boxes GROUP BY Warehouse;

	Warehouse	AvgBoxValue
1	1	162.500000
2	2	162.500000
3	3	115.000000
4	4	165.000000
5	5	90.000000

6. Same as previous exercise, but select only those warehouses where the average value of the boxes is greater than \$150.

Ans : SELECT Warehouse, AVG(Value) AS AvgBoxValue FROM Boxes GROUP BY Warehouse HAVING AVG(Value) > 150;

	Warehouse	AvgBoxValue
1	1	162.500000
2	2	162.500000
3	4	165.000000

7. Select the code of each box, along with the name of the city the box is located in.

Ans : SELECT B.Code, W.Location FROM Boxes B JOIN Warehouses W ON B.Warehouse = W.Code;

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	Code	Location
1	0MN7	SGSITS
2	4H8P	Indore
3	4RT3	Phoneix Citadel
4	7G3H	Indore
5	8JN6	Indore
6	8Y6U	SGSITS
7	9J6F	VijayNagar
8	LL08	Phoneix Citadel
9	P0H6	Indore
10	P2T6	VijayNagar
11	TU55	Crescent Water Park

8. Select the warehouse codes, alongwith 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).

Ans : `SELECT W.Code, COUNT(B.Code) AS BoxCount FROM Warehouses W LEFT JOIN Boxes B ON W.Code = B.Warehouse GROUP BY W.Code;`

	Code	BoxCount
1	1	4
2	2	2
3	3	2
4	4	2
5	5	1

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).

Ans : `SELECT W.Code FROM Warehouses W  
JOIN (SELECT Warehouse, COUNT(*) AS BoxCount FROM Boxes  
GROUP BY Warehouse) B ON W.Code = B.Warehouse  
WHERE B.BoxCount > W.Capacity;`

	Code
1	1

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

Ans :

`SELECT B.Code  
FROM Boxes B  
JOIN Warehouses W ON B.Warehouse = W.Code  
WHERE W.Location = 'SGSITS';`

	Code
1	0MN7
2	8Y6U

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

Ans : `INSERT INTO Warehouses (Code, Location, Capacity)  
VALUES (6, 'Crescent Water Park', 3);  
SELECT * FROM Warehouses;`

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	Code	Location	Capacity
1	1	Indore	3
2	2	VijayNagar	4
3	3	SGSITS	7
4	4	Phoneix Citadel	2
5	5	Crescent Water Park	8
6	6	Crescent Water Park	3

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

Ans :

UPDATE Boxes

SET Value = Value \* 0.85;

SELECT \* FROM Boxes;

	Code	Contents	Value	Warehouse
1	0MN7	Rocks	153.00	3
2	4H8P	Rocks	212.50	1
3	4RT3	Scissors	161.50	4
4	7G3H	Rocks	170.00	1
5	8JN6	Papers	63.75	1
6	8Y6U	Papers	42.50	3
7	9J6F	Papers	148.75	2
8	LL08	Rocks	119.00	4
9	P0H6	Scissors	106.25	1
10	P2T6	Scissors	127.50	2
11	TU55	Papers	76.50	5

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

Ans : INSERT INTO Boxes (Code, Contents, Value, Warehouse) VALUES ('H5VX', 'Biscuits', 200, 2);

	Code	Contents	Value	Warehouse
1	0MN7	Rocks	153.00	3
2	4H8P	Rocks	212.50	1
3	4RT3	Scissors	161.50	4
4	7G3H	Rocks	170.00	1
5	8JN6	Papers	63.75	1
6	8Y6U	Papers	42.50	3
7	9J6F	Papers	148.75	2
8	H5RT	Biscuits	200.00	2
9	H5VX	Biscuits	200.00	2
10	LL08	Rocks	119.00	4
11	P0H6	Scissors	106.25	1
12	P2T6	Scissors	127.50	2
13	TU55	Papers	76.50	5

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

Ans : UPDATE Boxes SET Value = Value \* 0.80 WHERE Value > (SELECT AVG(Value) FROM Boxes);

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	Code	Contents	Value	Warehouse
1	OMN7	Rocks	122.40	3
2	4H8P	Rocks	170.00	1
3	4RT3	Scissors	129.20	4
4	7G3H	Rocks	136.00	1
5	8JN6	Papers	63.75	1
6	8Y6U	Papers	42.50	3
7	9J6F	Papers	119.00	2
8	H5RT	Biscuits	160.00	2
9	H5VX	Biscuits	160.00	2
10	LL08	Rocks	119.00	4
11	P0H6	Scissors	106.25	1
12	P2T6	Scissors	127.50	2
13	TU55	Papers	76.50	5

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

Ans : DELETE FROM Boxes WHERE Value < 100;

	Code	Contents	Value	Warehouse
1	OMN7	Rocks	122.40	3
2	4H8P	Rocks	170.00	1
3	4RT3	Scissors	129.20	4
4	7G3H	Rocks	136.00	1
5	9J6F	Papers	119.00	2
6	H5RT	Biscuits	160.00	2
7	H5VX	Biscuits	160.00	2
8	LL08	Rocks	119.00	4
9	P0H6	Scissors	106.25	1
10	P2T6	Scissors	127.50	2

16. Remove all boxes from saturated warehouse.

Ans :

DELETE FROM Boxes

WHERE Warehouse IN (

SELECT W.Code

FROM Warehouses W

JOIN (SELECT Warehouse, COUNT(\*) AS BoxCount

FROM Boxes

GROUP BY Warehouse) B

ON W.Code = B.Warehouse

WHERE B.BoxCount > W.Capacity

);

	Code	Contents	Value	Warehouse
1	OMN7	Rocks	122.40	3
2	4H8P	Rocks	170.00	1
3	4RT3	Scissors	129.20	4
4	7G3H	Rocks	136.00	1
5	9J6F	Papers	119.00	2
6	H5RT	Biscuits	160.00	2
7	H5VX	Biscuits	160.00	2
8	LL08	Rocks	119.00	4
9	P0H6	Scissors	106.25	1
10	P2T6	Scissors	127.50	2