MODULE: 5 (Database)

1. What do you understand By Database?

ans: Database is a software used to organize the data,sort the data etc.Images, video,audio anything can be attached in it , easy for beginners too.

2. What is Normalization?

ans: It is the prosses of structuring a relationla database in accordance with a series of so called normal forms in order t reduce data refundancy and improve data intergrity.

3. What is Difference between DBMS and RDBMS?

ans:

DBMS: Databse management system ,its a ttype of software that is typically used to manage the data flow, such as insertion ,updating,deleting and retrieving so that it meaintains the uniformility.

RDBMS:Realational Database managrment stytem,a sit is used to create or maintain using key constraints.

4. What is MF Cod Rule of RDBMS Systems?

ans: Codd's rule in DBMSalso know as codd's 12rules/commandmentsdatabase management system

5. What do you understand By Data Redundancy?

ans: Data redudancy is a proccess of keeing data in ,ore than one organizaqrion.

6. What is DDL Interpreter?

ans:(Data Definition Language)instruction and stores the record in a data dictionary n query optimizer.

7. What is DML Compiler in SQL?

ans:(Data manipulation language) refers to a computer programming language that allows ypu to add ,delete,alter data in a database.

8. What is SQL Key Constraints writing an Example of SQL Key Constraints

ans: Constraits can be specified when the table is created with the CREATE TABLE statement or after the tabke is created and modifies with the altr table statement.

9. What is save Point? How to create a save Point write a Query?

ans: it is a point in a ttransaction in which you can roll the transaction back to a certain point without rolling back the entire transaction.

10.What is trigger and how to create a Trigger in SQL?

ans: It allows u to specify SQL actions that should be executed automatically when a specific event occurs in the database.

<u>1. Create Table Name : Student and Exam</u>

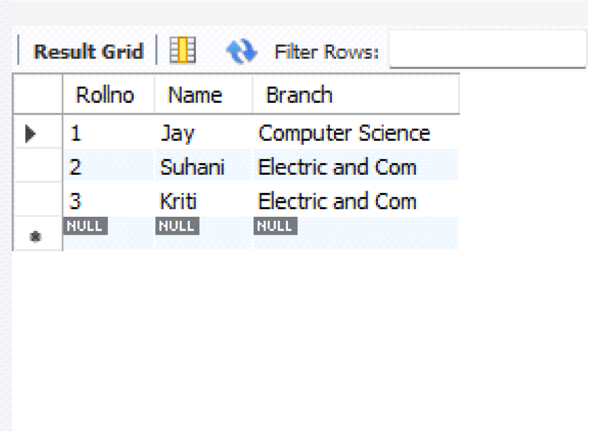
<u>Code:</u>

```
create database form;

use form;

create table Student(

Rollno int primary key,

Name varchar(50),

Branch varchar(50)

);

insert into Student(Rollno,Name,Branch) values

(1,"Jay","Computer Science");
```

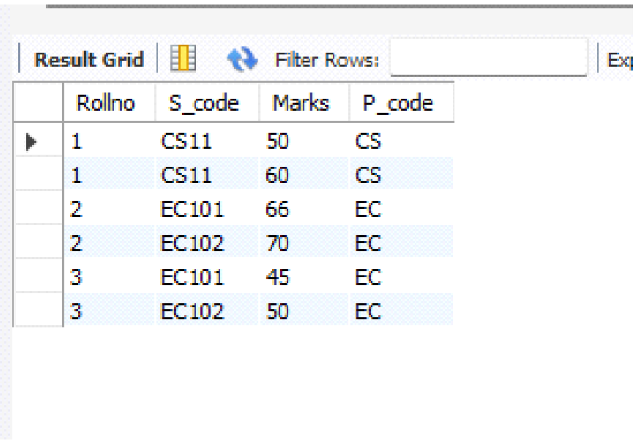
```
insert into Student(Rollno,Name,Branch) values
(2,"Suhani","Electric and Com");
insert into Student(Rollno,Name,Branch) values
(3,"Kriti","Electric and Com");

select * from Student;



create table Exam1(
Rollno int,
S_code varchar(7),
Marks int ,
P_code varchar(2)
);

insert into Exam1 (Rollno,S_code,Marks,P_code) values
(1,"CS11",50,"CS");
insert into Exam1 (Rollno,S_code,Marks,P_code) values
(1,"CS11",60,"CS");
insert into Exam1(Rollno,S_code,Marks,P_code) values
(2,"EC101",66,"EC");
insert into Exam1(Rollno,S_code,Marks,P_code) values
(2,"EC102",70,"EC");
insert into Exam1(Rollno,S_code,Marks,P_code) values
(3,"EC101",45,"EC");
```

```
insert into Exam1(Rollno,S_code,Marks,P_code) values
(3,"EC102",50,"EC");

select * from Exam1;
```

Output:



Rollno	Name	Branch
1	Jay	Computer Science
2	Suhani	Electric and Com
3	Kriti	Electric and Com
NULL	NULL	NULL



Rollno	S_code	Marks	P_code
1	CS11	50	CS
1	CS11	60	CS
2	EC101	66	EC
2	EC102	70	EC
3	EC101	45	EC
3	EC102	50	EC

2. Create a table named Employee and Incentives.

Code:

```
-- Create the Example table
CREATE TABLE Employee (
EmployeeID INT PRIMARY KEY,
FirstName VARCHAR(50),
LastName VARCHAR(50),
Salary INT,
JoiningDate DATETIME,
Department VARCHAR(50)
);
-- Insert data into the Example table
insert into Employee (EmployeeID, FirstName, LastName, Salary,
JoiningDate,
Department)
VALUES
(1, 'John', 'Abraham', 1000000, '2013-01-01 12:00:00', 'Banking'),
(2, 'Michael', 'Clarke', 800000, '2013-01-01 12:00:00', 'Insurance'),
(3, 'Roy', 'Thomas', 700000, '2013-02-01 12:00:00', 'Banking'),
(4, 'Tom', 'Jose', 600000, '2013-02-01 12:00:00', 'Insurance'),
(5, 'Jerry', 'Pinto', 650000, '2013-02-01 12:00:00', 'Insurance'),
(6, 'Philip', 'Mathew', 750000, '2013-01-01 12:00:00', 'Services'),
(7, 'TestName1', '123', 650000, '2013-01-01 12:00:00', 'Services'),
(8, 'TestName2', 'Lname%', 600000, '2013-02-01 12:00:00', 'Insurance');
create table Incentive (
Employee_ref_id INT,
Incentive_date DATETIME,
Incentive_amount INT,
foreign key (Employee_ref_id) REFERENCES Employee(EmployeeID)
);
 Insert data into the Incentive table
insert intpo Incentive (Employee_ref_id, Incentive_date, Incentive_amount)
values
(1, '2013-02-01', 5000),
```

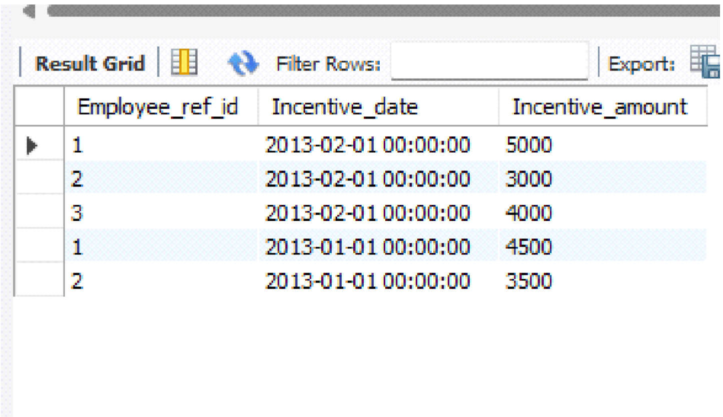
(2, '2013-02-01', 3000),

(3, '2013-02-01', 4000),

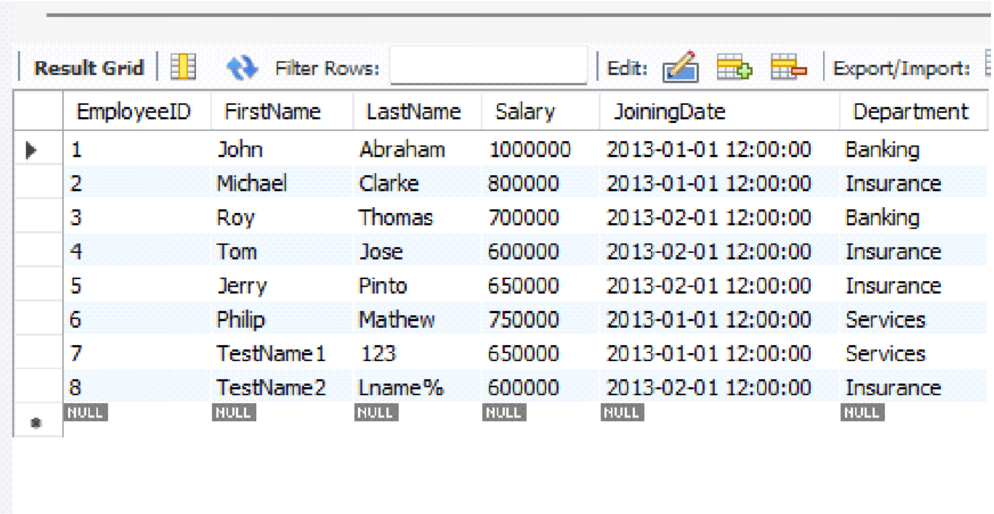
(1, '2013-01-01', 4500),

(2, '2013-01-01', 3500);

Output:

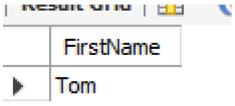


	Employee_ref_id	Incentive_date	Incentive_amount
▶	1	2013-02-01 00:00:00	5000
	2	2013-02-01 00:00:00	3000
	3	2013-02-01 00:00:00	4000
	1	2013-01-01 00:00:00	4500
	2	2013-01-01 00:00:00	3500



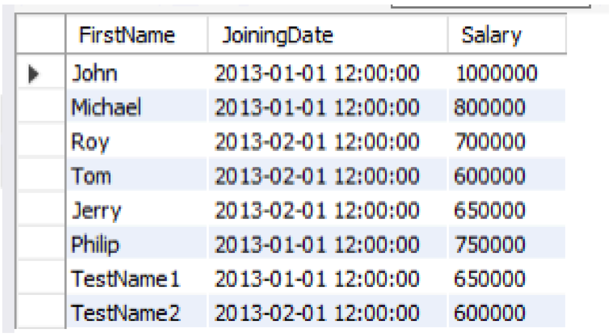
	EmployeeID	FirstName	LastName	Salary	JoiningDate	Department
▶	1	John	Abraham	1000000	2013-01-01 12:00:00	Banking
	2	Michael	Clarke	800000	2013-01-01 12:00:00	Insurance
	3	Roy	Thomas	700000	2013-02-01 12:00:00	Banking
	4	Tom	Jose	600000	2013-02-01 12:00:00	Insurance
	5	Jerry	Pinto	650000	2013-02-01 12:00:00	Insurance
	6	Philip	Mathew	750000	2013-01-01 12:00:00	Services
	7	TestName1	123	650000	2013-01-01 12:00:00	Services
	8	TestName2	Lname%	600000	2013-02-01 12:00:00	Insurance
*	NULL	NULL	NULL	NULL	NULL	NULL

3. Get First_Name from employee table using Tom name “Employee Name”.



	FirstName
▶	Tom

4. Get FIRST_NAME, Joining Date, and Salary from employee table.

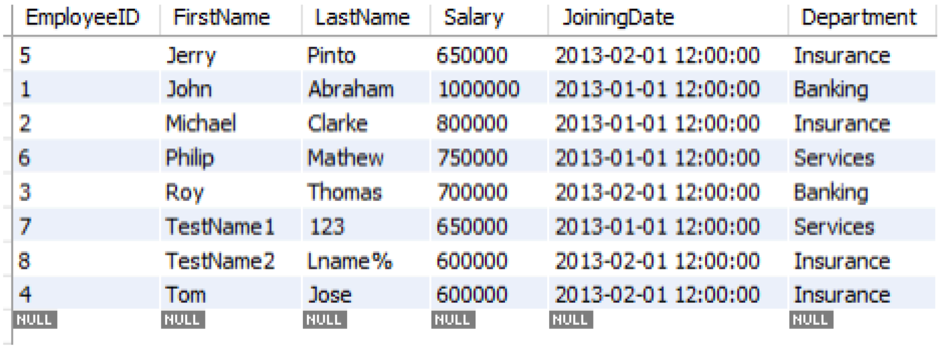


FirstName	JoiningDate	Salary
John	2013-01-01 12:00:00	1000000
Michael	2013-01-01 12:00:00	800000
Roy	2013-02-01 12:00:00	700000
Tom	2013-02-01 12:00:00	600000
Jerry	2013-02-01 12:00:00	650000
Philip	2013-01-01 12:00:00	750000
TestName1	2013-01-01 12:00:00	650000
TestName2	2013-02-01 12:00:00	600000

5. Get all employee details from the employee table order by First_Name

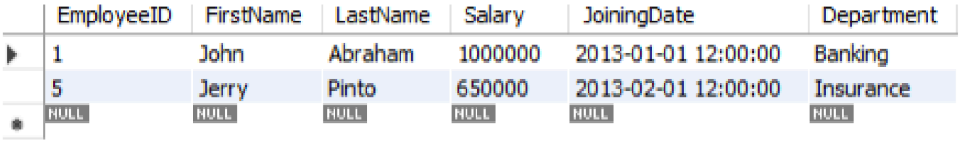
Ascending and Salary descending?

Output:



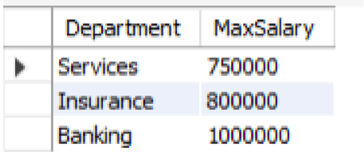
EmployeeID	FirstName	LastName	Salary	JoiningDate	Department
5	Jerry	Pinto	650000	2013-02-01 12:00:00	Insurance
1	John	Abraham	1000000	2013-01-01 12:00:00	Banking
2	Michael	Clarke	800000	2013-01-01 12:00:00	Insurance
6	Philip	Mathew	750000	2013-01-01 12:00:00	Services
3	Roy	Thomas	700000	2013-02-01 12:00:00	Banking
7	TestName1	123	650000	2013-01-01 12:00:00	Services
8	TestName2	Lname%	600000	2013-02-01 12:00:00	Insurance
4	Tom	Jose	600000	2013-02-01 12:00:00	Insurance
NULL	NULL	NULL	NULL	NULL	NULL

6. Get employee details from employee table whose first name contains ‘J’.



EmployeeID	FirstName	LastName	Salary	JoiningDate	Department
1	John	Abraham	1000000	2013-01-01 12:00:00	Banking
5	Jerry	Pinto	650000	2013-02-01 12:00:00	Insurance
NULL	NULL	NULL	NULL	NULL	NULL

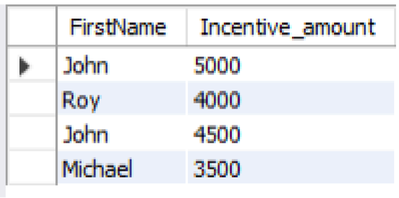
7. Get department wise maximum salary from employee table order by salaryascending?



Department	MaxSalary
Services	750000
Insurance	800000
Banking	1000000

9. Select first_name, incentive amount from employee and incentives table for those employees who have incentives and

incentive amount greater than 3000



FirstName	Incentive_amount
John	5000
Roy	4000
John	4500
Michael	3500

10. Create After Insert trigger on Employee table which insert records in viewtable

Code:

```
create trigger after_employee_insert

INSERT INTO viewtable (EmployeeID, FirstName, LastName,
Salary, JoiningDate,


VALUES (NEW.EmployeeID, NEW.FirstName, NEW.LastName,
NEW.Salary,

NEW.JoiningDate, NEW.Department);
```

11.Create table given below: Salesperson and Customer

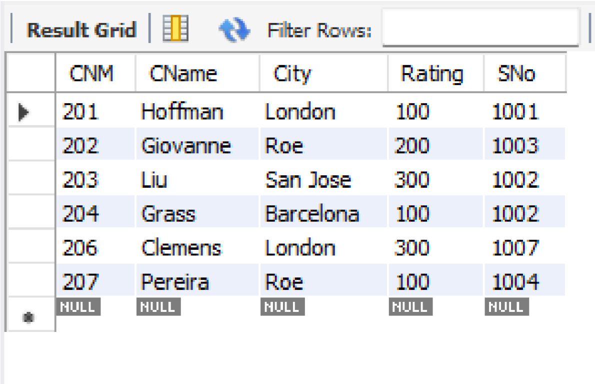
Code:

```
-- Create Salesperson table

CREATE TABLE Salesperson (

SNo INT PRIMARY KEY,

SName VARCHAR(50),

City VARCHAR(50),

Comm INT

);

-- Insert data into Salesperson table

INSERT INTO Salesperson (SNo, SName, City, Comm)
```

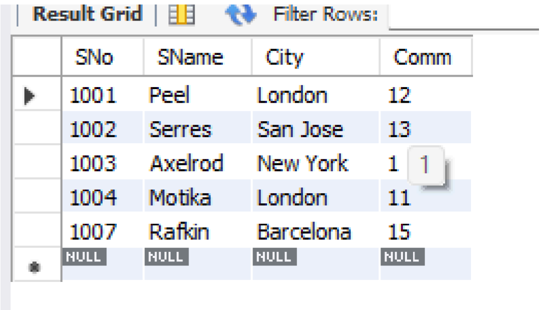
```
VALUES
(1001, 'Peel', 'London', 12),
(1002, 'Serres', 'San Jose', 13),
(1004, 'Motika', 'London', 11),
(1007, 'Rafkin', 'Barcelona', 15),
(1003, 'Axelrod', 'New York', 1);
-- Create Customer table
CREATE TABLE Customer (
CNM INT PRIMARY KEY,
CName VARCHAR(50),
City VARCHAR(50),
Rating INT,
SNo INT,
FOREIGN KEY (SNo) REFERENCES Salesperson(SNo)
);
-- Insert data into Customer table
INSERT INTO Customer (CNM, CName, City, Rating, SNo)
VALUES
(201, 'Hoffman', 'London', 100, 1001),
(202, 'Giovanne', 'Roe', 200, 1003),
(203, 'Liu', 'San Jose', 300, 1002),
(204, 'Grass', 'Barcelona', 100, 1002),
(206, 'Clemens', 'London', 300, 1007),
(207, 'Pereira', 'Roe', 100, 1004);
select * from Salesperson;
```

select * from Customer;

Output:



CNM	CName	City	Rating	SNo
201	Hoffman	London	100	1001
202	Giovanne	Roe	200	1003
203	Liu	San Jose	300	1002
204	Grass	Barcelona	100	1002
206	Clemens	London	300	1007
207	Pereira	Roe	100	1004
NULL	NULL	NULL	NULL	NULL



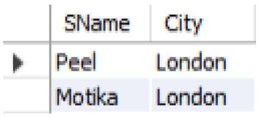
SNo	SName	City	Comm
1001	Peel	London	12
1002	Serres	San Jose	13
1003	Axelrod	New York	1
1004	Motika	London	11
1007	Rafkin	Barcelona	15
NULL	NULL	NULL	NULL

14.Names and cities of all salespeople in London with commission above 0.12

Code:

```
select SName, city
from Salesperson
where City = 'London' AND Comm > 0.12;
```

Output:



SName	City
Peel	London
Motika	London

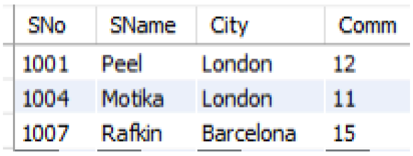
15.All salespeople either in Barcelona or in London

Code:

```
SELECT *
```

```
FROM Salesperson

WHERE City IN ('Barcelona', 'London');
```

Output:



SNo	SName	City	Comm
1001	Peel	London	12
1004	Motika	London	11
1007	Rafkin	Barcelona	15

16.All salespeople with commission between 0.10 and 0.12. (Boundary valuesshould be excluded).

Code:

```
SELECT *

FROM Salesperson

WHERE Comm > 0.10 AND Comm < 0.12;
```

Output:

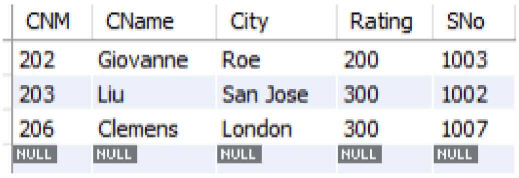
All values will be null.

17.All customers excluding those with rating <= 100 unless they are located in Rome

Code:

```
SELECT *

FROM Customer

WHERE Rating > 100 OR (Rating <= 100 AND City = 'Rome');
```

Output:



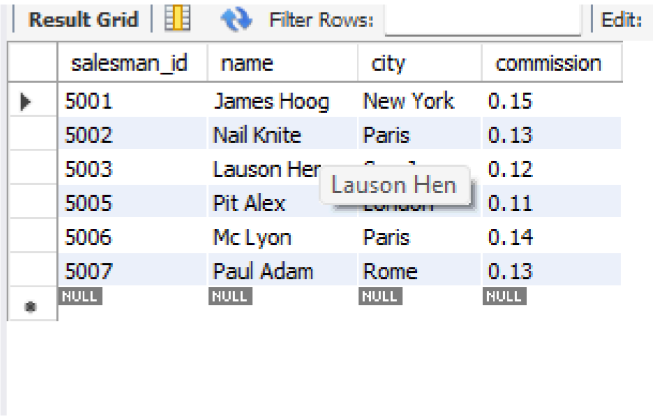
CNM	CName	City	Rating	SNo
202	Giovanne	Roe	200	1003
203	Liu	San Jose	300	1002
206	Clemens	London	300	1007
NULL	NULL	NULL	NULL	NULL

18. Write a SQL statement that displays all the information about all salespeople

Code:

```
-- Create the salespeople table
CREATE TABLE salespeople (
salesman_id INT PRIMARY KEY,
name VARCHAR(50),
city VARCHAR(50),
commission DECIMAL(5, 2)
);
-- Insert records into the salespeople table
INSERT INTO salespeople (salesman_id, name, city, commission)
VALUES
(5001, 'James Hoog', 'New York', 0.15),
(5002, 'Nail Knite', 'Paris', 0.13),
(5005, 'Pit Alex', 'London', 0.11),
(5006, 'Mc Lyon', 'Paris', 0.14),
(5007, 'Paul Adam', 'Rome', 0.13),
(5003, 'Lauson Hen', 'San Jose', 0.12);
select * from salespeople;
```

Output:



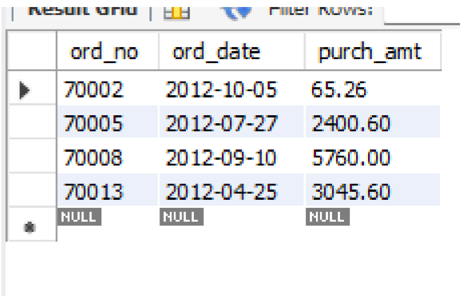
salesman_id	name	city	commission
5001	James Hoog	New York	0.15
5002	Nail Knite	Paris	0.13
5003	Lauson Her	[illegible]	0.12
5005	Pit Alex	London	0.11
5006	Mc Lyon	Paris	0.14
5007	Paul Adam	Rome	0.13
NULL	NULL	NULL	NULL

19. From the following table, write a SQL query to find orders that are delivered by a salesperson with ID. 5001. Return ord_no, ord_date,purch_amt.

Code:

```
-- Create the orders table

CREATE TABLE orders (

ord_no INT PRIMARY KEY,

purch_amt DECIMAL(10, 2),

ord_date DATE,

customer_id INT,

salesman_id INT

);

-- Insert records into the orders table

INSERT INTO orders (ord_no, purch_amt, ord_date, customer_id, salesman_id)

VALUES

(70001, 150.5, '2012-10-05', 3005, 5002),

(70009, 270.65, '2012-09-10', 3001, 5005),

(70002, 65.26, '2012-10-05', 3002, 5001),

(70004, 110.5, '2012-08-17', 3009, 5003),
(70007, 948.5, '2012-09-10', 3005, 5002),
(70005, 2400.6, '2012-07-27', 3007, 5001),
(70008, 5760, '2012-09-10', 3002, 5001),
(70010, 1983.43, '2012-10-10', 3004, 5006),
(70003, 2480.4, '2012-10-10', 3009, 5003),
(70012, 250.45, '2012-06-27', 3008, 5002),
(70011, 75.29, '2012-08-17', 3003, 5007),
(70013, 3045.6, '2012-04-25', 3002, 5001);
SELECT ord_no, ord_date, purch_amt
FROM orders
WHERE salesman_id = 5001;
```

Output:



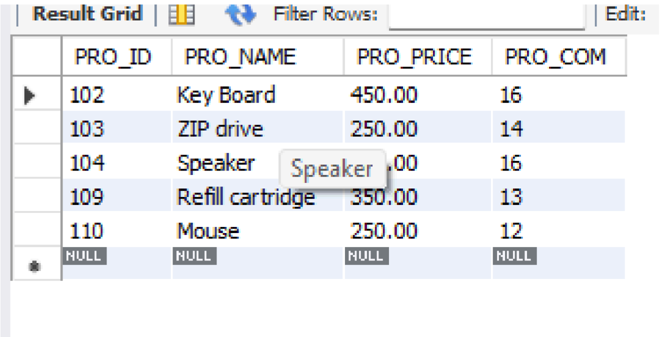
ord_no	ord_date	purch_amt
70002	2012-10-05	65.26
70005	2012-07-27	2400.60
70008	2012-09-10	5760.00
70013	2012-04-25	3045.60
NULL	NULL	NULL

20. From the following table, write a SQL query to select a range of products whose price is in the range Rs.200 to Rs.600. Begin and end values are included. Return pro_id, pro_name, pro_price, and pro_com.

Code:

```
-- Create the item_mast table
CREATE TABLE item_mast (
PRO_ID INT PRIMARY KEY,
PRO_NAME VARCHAR(50),
PRO_PRICE DECIMAL(10, 2),
PRO_COM INT
);
-- Insert records into the item_mast table
INSERT INTO item_mast (PRO_ID, PRO_NAME, PRO_PRICE, PRO_COM)
VALUES
(101, 'Mother Board', 3200.00, 15),
(102, 'Key Board', 450.00, 16),
(103, 'ZIP drive', 250.00, 14),
(104, 'Speaker', 550.00, 16),
(105, 'Monitor', 5000.00, 11),
(106, 'DVD drive', 900.00, 12),
(107, 'CD drive', 800.00, 12),
(108, 'Printer', 2600.00, 13),
(109, 'Refill cartridge', 350.00, 13),
(110, 'Mouse', 250.00, 12);
-- Select products within the price range of Rs.200 to Rs.600
SELECT PRO_ID, PRO_NAME, PRO_PRICE, PRO_COM
FROM item_mast
WHERE PRO_PRICE BETWEEN 200.00 AND 600.00;
```

Output:



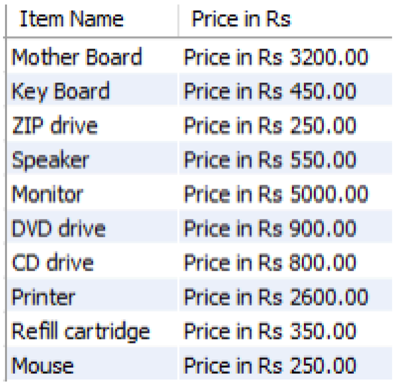
PRO_ID	PRO_NAME	PRO_PRICE	PRO_COM
102	Key Board	450.00	16
103	ZIP drive	250.00	14
104	Speaker	.00	16
109	Refill cartridge	350.00	13
110	Mouse	250.00	12
NULL	NULL	NULL	NULL

22. From the following table, write a SQL query to display the pro_name as 'Item Name' and pro_priceas 'Price in Rs.'

Code:

```
SELECT pro_name AS 'Item Name', CONCAT('Price in Rs ', pro_price) AS 'Price in Rs'

FROM item_mast;
```

Output:



Item Name	Price in Rs
Mother Board	Price in Rs 3200.00
Key Board	Price in Rs 450.00
ZIP drive	Price in Rs 250.00
Speaker	Price in Rs 550.00
Monitor	Price in Rs 5000.00
DVD drive	Price in Rs 900.00
CD drive	Price in Rs 800.00
Printer	Price in Rs 2600.00
Refill cartridge	Price in Rs 350.00
Mouse	Price in Rs 250.00

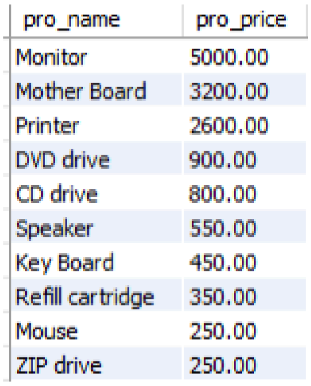
23. From the following table, write a SQL query to find the items whose prices are higher than or equal to $250. Order the result by product price in descending, then product name in ascending. Return pro_name and pro_price.

Code:

```
select pro_name, pro_price

from item_mast

where pro_price >= 250
```

order by pro_price decs, pro_name asc;

Output:



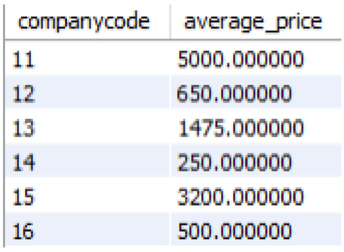
pro_name	pro_price
Monitor	5000.00
Mother Board	3200.00
Printer	2600.00
DVD drive	900.00
CD drive	800.00
Speaker	550.00
Key Board	450.00
Refill cartridge	350.00
Mouse	250.00
ZIP drive	250.00

24. From the following table, write a SQL query to calculate average price of the items for each company. Return average price and companycode

Code:

```
select pro_com AS companycode, avg(pro_price) as average_price

from item_mast

group by pro_com;
```

Output:



companycode	average_price
11	5000.000000
12	650.000000
13	1475.000000
14	250.000000
15	3200.000000
16	500.000000