**Title**: Design at least 10 SQL queries for suitable database application using SQL DML statements: all types of Joins, Sub-Query and View.

**Tables:**

Pack\_grades(grade\_id,grade\_name,min\_price,max\_price)

Packages(pack\_id,speed,strt\_date,monthly\_payment,sector\_id)

Customers(cust\_id,firstname,lastname,birthdate,joindate,city,state,street,main\_phone\_num,secondary\_phn\_no,fax,monthly\_discount,pack\_id)

Sectors(sector\_id,sector\_name)

**Foreign Key Syntax:**

## CREATE TABLE TABLENAME (

COLUMN\_LIST, PRIMARY KEY (COL NAME),  
 FOREIGN KEY (COL NAME FROM SAME TABLE) REFERENCES REF\_TABLE NAME (COL NAME FROM REF\_TABLE));

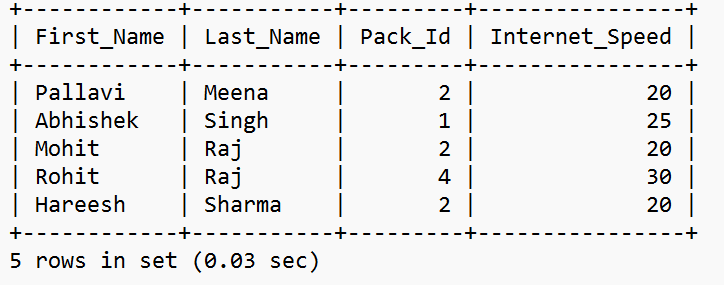
**Inner JOIN**

1. Customers and internet packages (*Customers* & *Packages* tables) –
   1. Write a query to display first name, last name, package number and internet speed for all customers.

SELECT First\_Name, Last\_Name, Customers.Pack\_Id, Internet\_Speed

FROM Customers

INNER JOIN Packages ON Customers.Pack\_Id = Packages.Pack\_Id;



* 1. Write a query to display first name, last name, package number and internet speed for all customers whose package number equals 2 or 4. Order the query in ascending order by last name.

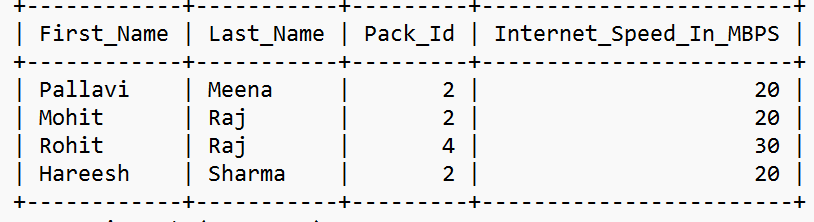
SELECT First\_Name, Last\_Name, Customers.Pack\_Id, Internet\_Speed AS

Internet\_Speed\_In\_MBPS

FROM Customers

JOIN Packages ON Customers.Pack\_Id = Packages.Pack\_Id

WHERE Customers.Pack\_Id BETWEEN 2 AND 4 ORDER BY Last\_Name;



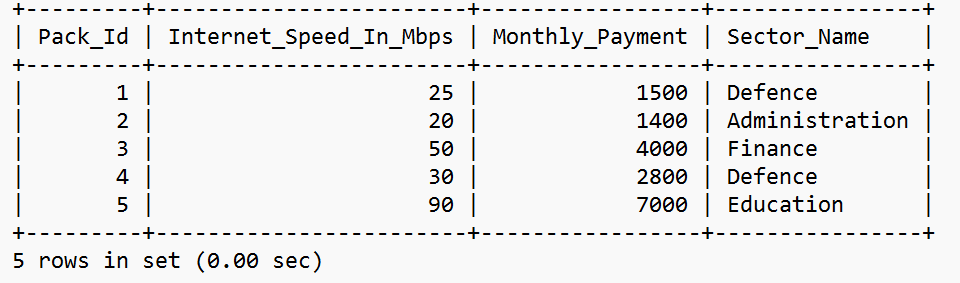
1. Internet packages and sectors –
   1. Display the package number, internet speed, monthly payment and sector name for all packages (*Packages* and *Sectors* tables).

SELECT Packages.Pack\_Id, Internet\_Speed

AS Internet\_Speed\_In\_Mbps, Monthly\_Payment, Sector\_Name

FROM Packages

JOIN Sector ON Packages.Sector\_Id = Sector.Sector\_Id ORDER BY Pack\_Id;



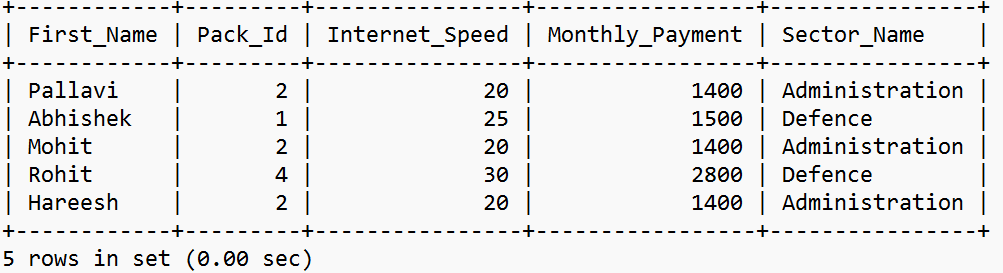
* 1. Display the customer name, package number, internet speed, monthly payment and sector name for all customers (*Customers*, *Packages* and *Sectors* tables).

SELECT First\_Name, Customers.Pack\_Id, Internet\_Speed, Monthly\_Payment, Sector\_Name

FROM Customers

JOIN Packages ON Customers.Pack\_Id = Packages.Pack\_Id

JOIN Sector ON Packages.Sector\_Id = Sector.Sector\_Id;



* 1. Display the customer name, package number, internet speed, monthly payment and sector name for all customers in the Administration sector (*Customers*, *Packages* and *Sectors* tables).

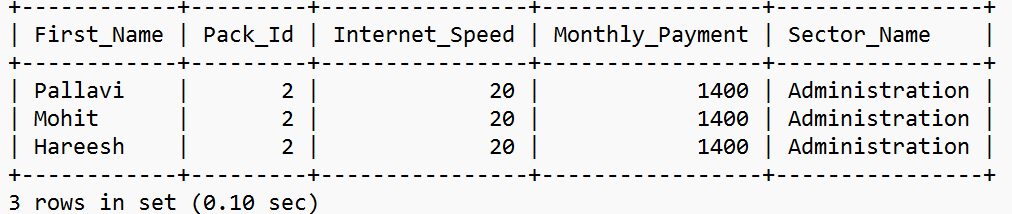
SELECT First\_Name, Customers.Pack\_Id, Internet\_Speed, Monthly\_Payment, Sector\_Name

FROM Customers

JOIN Packages ON Customers.Pack\_Id = Packages.Pack\_Id

JOIN Sector ON Packages.Sector\_Id = Sector.Sector\_Id

WHERE Sector\_Name = 'Administration';



1. Display the last name, first name, join date, package number, internet speed and sector name for all customers in the private sector who joined the company in the year 2006.

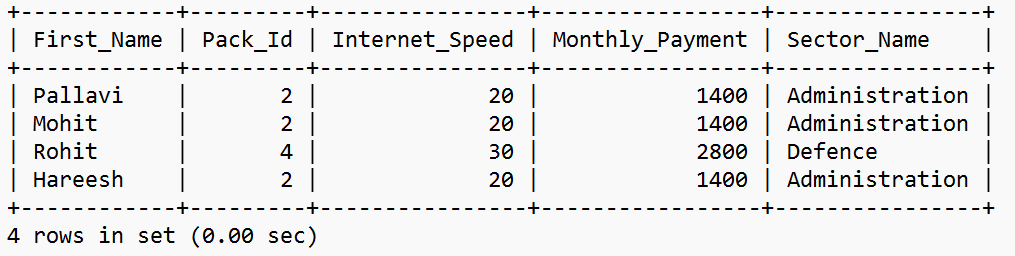
SELECT First\_Name, Customers.Pack\_Id, Internet\_Speed, Monthly\_Payment, Sector\_Name

FROM Customers

JOIN Packages ON Customers.Pack\_Id = Packages.Pack\_Id

JOIN Sector ON Packages.Sector\_Id = Sector.Sector\_Id

WHERE Joining\_Date BETWEEN '2021-01-01' AND '2022-12-31';



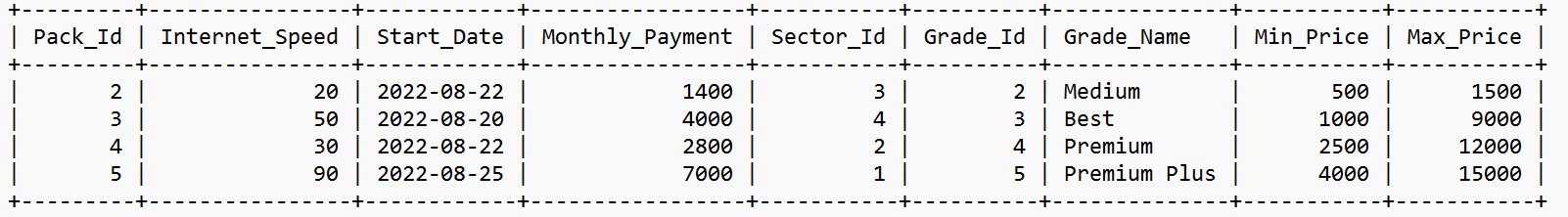
**Non Equi Join**

1. Display the package number, internet speed, monthly payment and package grade for all packages whose monthly payment is between min\_price and max\_price(*Packages* and *Pack\_Grades* tables).

SELECT \* FROM Packages

LEFT OUTER JOIN Pack\_Grades ON Pack\_Id = Grade\_Id

WHERE Monthly\_Payment BETWEEN Min\_Price AND Max\_Price;



**Outer Join**

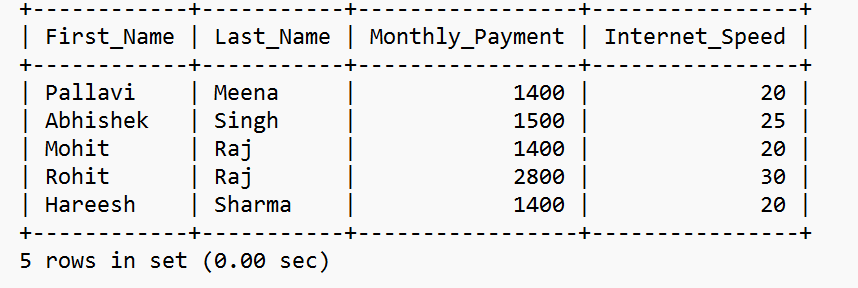
* 1. Customers and internet packages (*Customers* and *Packages* tables)
     1. Display the first name, last name, internet speed and monthly payment for all customers. Use INNER JOIN to solve this exercise.

SELECT First\_Name, Last\_Name, Monthly\_Payment,

Internet\_Speed

FROM Customers

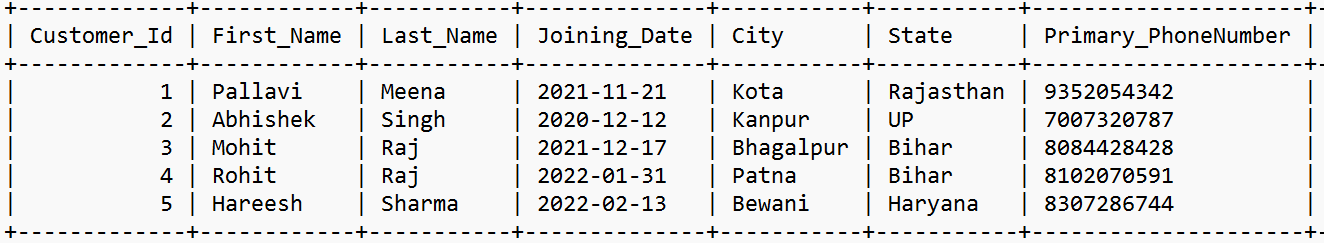
INNER JOIN Packages ON Customers.Pack\_Id = Packages.Pack\_Id;

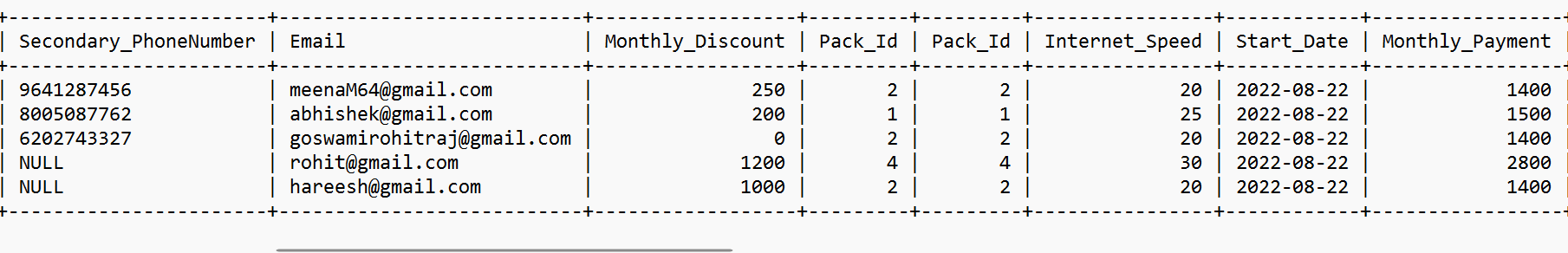


* + 1. Modify last query to display all customers, including those without any internet package.
    2. Modify last query to display all packages, including those without any customers.
    3. Modify last query to display all packages and all customers.

SELECT \* FROM Customers

LEFT OUTER JOIN Packages ON Customers.Pack\_Id = Packages.Pack\_Id;





**Self Join**

* + 1. Display the last name, first name and package number for all customers who have the same package number as customer named ‘A Taylor’ (*Customers* table).

SELECT Table1\_Customers.First\_Name AS First\_Name,

Table2\_Customers.Pack\_Id AS Pack\_Id

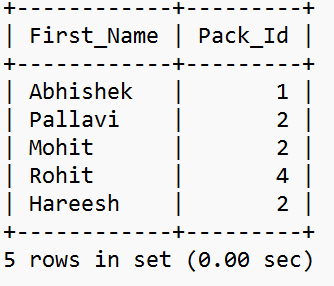
FROM Customers AS Table1\_Customers

JOIN Customers AS Table2\_Customers

ON Table1\_Customers.Customer\_Id =

Table2\_Customers.Customer\_Id

GROUP BY Table1\_Customers.Customer\_Id;



* + 1. Display the first name and monthly discount for all customers whose monthly discount is lower than the monthly discount of employee with Customers Id 3(*Customers* table).

mysql> SELECT Table1\_Customers.First\_Name AS First\_Name,

Table2\_Customers.Monthly\_Discount AS Monthly\_Discount

FROM Customers AS Table1\_Customers JOIN Customers AS Table2\_Customers

ON Table1\_Customers.Customer\_Id = Table2\_Customers.Customer\_Id

WHERE Table2\_Customers.Monthly\_Discount < 1000;

