**SQL Multi Row Function**

**Aggregate Functions**

## Part 1 – Basic Usage

1. Display the lowest last name alphabetically (Customers table).

**select min(last\_name) from customers;**

1. Display the average monthly payment (Packages table).

**SELECT avg(monthly\_payment) FROM packages;**

1. Display the highest last name alphabetically (Customers table).

**select max(last\_name) from customers;**

1. Display the number of internet packages (Packages table).

**select count(pack\_id) from packages;**

1. Display the number of records in Customers table.

**select count(\*) from customers;**

1. Display the number of distinct states (Customers table).

**select distinct state from customers;**

1. Display the number of distinct internet speeds (Packages table).

**select count(distinct speed) from packages;**

1. Display the number of values (exclude Nulls) in Fax column (Customers table).

**select count(FAX) from customers;**

1. Display the number of Null values in Fax column (Customers table).

**select count(\*) from customers where fax is null;**

1. Display the highest, lowest and average monthly discount (Customers table).

**select max(monthly\_discount),min(monthly\_discount),round(avg(monthly\_discount),2) from customers;**

## Part 2 – GROUP BY and HAVING clauses

1. Display the state and the number of customers for each state (Customers table).

**select state,count(customer\_id) from customers group by state;**

1. Display the internet speed and the average monthly payment for each speed (Packages table).

**select speed,avg(monthly\_payment) from packages group by speed;**

1. Display the state and the number of distinct cities for each state (Customers table).

**select state,count(distinct city) "Number of States" from customers group by state;**

1. Display the sector number and the highest monthly payment for each sector (Packages table).

**select sector\_id,max(monthly\_payment) "Max Monthly Payment By Sector" from packages group by sector\_id;**

1. Package number and average monthly discount (Customers table) –
   1. Display the package number and the average monthly discount for each package.

**select pack\_id,round(avg(monthly\_discount),2) from customers group by pack\_id;**

* 1. Display the package number and the average monthly discount for each package, only for packages whose number equals 22 or 13.

**select pack\_id,round(avg(monthly\_discount),2) from customers WHERE pack\_id in(22,13) group by pack\_id;**

1. Display the highest, lowest and average monthly payment for each internet speed (Packages table).

**select speed,max(monthly\_payment) "Highest Monthly Payment",min(monthly\_payment) "Lowest Monthly Payment",avg(monthly\_payment) "Average Monthly Payment" from packages group by speed;**

1. The number of customer in each internet package (Customers table) –
   1. Display the package number and the number of customers for each package number.

**select pack\_id,count(customer\_id) from customers group by pack\_id;**

* 1. Modify the query to display the package number and number of customers for each package number, only for the customers whose monthly discount is greater than 20.

**select pack\_id,count(customer\_id) from customers where monthly\_discount>20 group by pack\_id;**

* 1. Modify the query to display the package number and number of customers for each package number, only for the packages with more than 100 customers.

**select pack\_id,count(customer\_id) from customers group by pack\_id having count(customer\_id)>100;**

1. Display the state, city and number of customers for each state and city.

**select state,city,count(customer\_id) from customers group by state,city order by state;**

1. Cities and the average monthly discount (Customers table) –
   1. Display the city and the average monthly discount for each city

**select city,round(avg(monthly\_discount),2) "Average Monthly Discount" from customers group by city order by city;**

* 1. Display the city and the average monthly discount for each city, only for the customers whose monthly discount is greater than 20

**select city,round(avg(monthly\_discount),2) "Average Monthly Discount" from customers where monthly\_discount>20 group by city order by city;**

1. States and the lowest monthly discount (Customers table) –
   1. Display the state and the lowest monthly discount for each state.

**select state,min(monthly\_discount) "Lowest Monthly Discount" from customers group by state order by state;**

* 1. Display the state and lowest monthly discount for each state, only for states where the lowest monthly discount is greater than 10

**select state,min(monthly\_discount) "Lowest Monthly Discount" from customers group by state having min(monthly\_discount)>10 order by state;**

1. Display the internet speed and number of package for each internet speed, only for the internet speeds with more than 8 packages.

**select speed,count(pack\_id) from packages group by speed having count(pack\_id)>8;**