**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 count(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(\*)-count(fax)as countnull from customers;

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

select max(monthly\_discount),min(monthly\_discount), avg(monthly\_discount) 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) 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) 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, avg(monthly\_discount) 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, avg(monthly\_discount) from customers group by pack\_id having pack\_id in (22,13);

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

select max(monthly\_payment), min(monthly\_payment), avg(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;

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

select city, avg(monthly\_discount) from customers group 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, avg(monthly\_discount) from customers where monthly\_discount >20 group 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) from customers group 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) from customers group by state having min(monthly\_discount)>10;

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(\*) from packages group by speed having count(\*)>8;