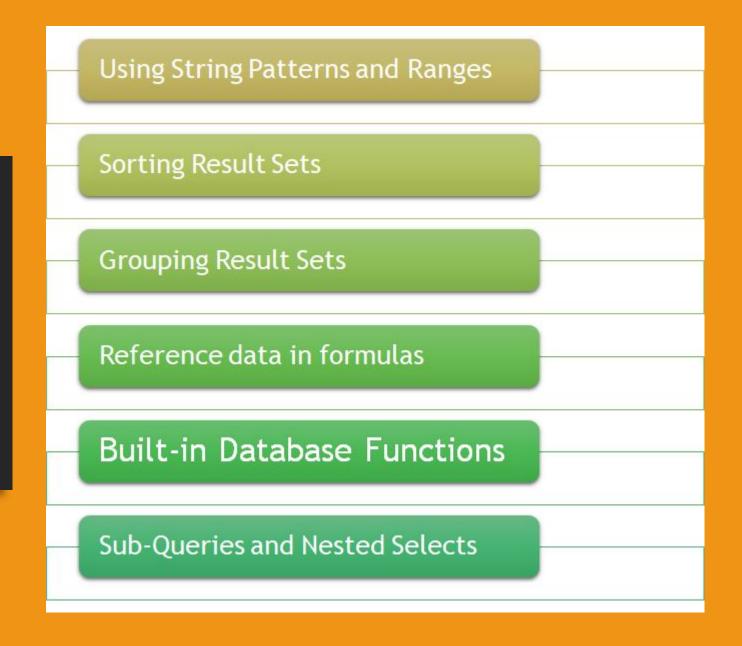
Databases & SQL for Data Science with Python

PROFESSIONAL CERTIFICATE IBM Data Analyst

In this week!



SELECT Statement Review

```
select * from ;
```

- SELECT column1, column2, ... FROM table_name;
- SELECT column1, column2, ... FROM table_name WHERE condition;

WHERE Clause

- The WHERE clause always requires a predicate, which is a condition that evaluates to true, false or unknown
- But what if we don't know exactly what value the predicate is?
 "Answer is in the next slide"

String pattern: LIKE Operator

 The like predicate is used in a WHERE clause to search for a pattern in a column.

SELECT column1, column2, ...
 FROM table_name
 WHERE columnN LIKE pattern;

LIKE operators with '%' and '_' wildcards

The percent sign is used to define missing letters.

The percent sign is called a wildcard character

LIKE Operator	Description
WHERE CustomerName LIKE 'a%'	Finds any values that start with "a"
WHERE CustomerName LIKE '%a'	Finds any values that end with "a"
WHERE CustomerName LIKE '%or%'	Finds any values that have "or" in any position
WHERE CustomerName LIKE '_r%'	Finds any values that have "r" in the second position
WHERE CustomerName LIKE 'a_%'	Finds any values that start with "a" and are at least 2 characters in length
WHERE CustomerName LIKE 'a%'	Finds any values that start with "a" and are at least 3 characters in length
WHERE ContactName LIKE 'a%o' https://www.w3schools.com/sql/sql	Finds any values that start with "a" and ends with "o" like.asp

https://www.w3schools.com/sql/sql_like.asp

• Write SQL statement that retrieves all students with a StudentName starting with "T", form University table.

• Write SQL statement that retrieves all students with a StudentName starting with "T", form University table.

 SELECT * FROM University WHERE StudentName LIKE 'T%';

Between Operator

• SELECT column_name(s)
FROM table_name
WHERE column_name BETWEEN value1 AND value2;

• Write SQL statement that selects all Participants from NPower table, with a score BETWEEN 60 and 90.

• Write SQL statement that selects all Participants from NPower table, with a score BETWEEN 60 and 90.

SELECT * FROM NPower
 WHERE score BETWEEN 60 AND 90;

 Write SQL statement that selects all Participants from Participants table, with a score BETWEEN 60 and 90. [use where clause]

• SELECT * FROM Participants WHERE score >= 60 AND score <= 90;

IN Operator

```
• SELECT column_name(s)
FROM table_name
WHERE column_name IN (value1, value2, ...);
```

• Select all Participants from NPower table who are located in "Calgary, GTA, Halifax"

 Select all Participants from NPower table who are located in "Calgary, GTA, Halifax"

SELECT * FROM Npower
 WHERE Location IN ('Calgary', 'GTA', 'Halifax');

• Select all Participants from Participants table who are located in "Calgary, GTA, Halifax" [don't use IN]

• SELECT * FROM Participants WHERE Location='Calgary' OR Location='GTA' OR Location='Halifax';

Sorting Result Sets

How to display the result in alphabetical order?

How to display the result in descending order?

• How to display the result in descending order for a specific column?

Sorting Result Sets

- How to display the result in alphabetical order?
- Select title from Book ORDER BY title
- How to display the result in descending order?
- Select title from Book Order BY title DESC
- How to display the result in descending order for a specific column?
- Select title from Book Order BY 2 DESC

Built-in Database Functions

List some aggregate or column function, what do they do?

List some Scalar and String functions, what do they do?

List some built-in BD2 functions for date and time?

Grouping Result Sets

- Eliminate duplicates from a result set
- Describe how to further restrict a result set

- What is the output from the following query?
- SELECT Country, COUNT(CustomerID) as Count FROM Customers GROUP BY Country;

- What is the output from the following query?
- SELECT Country, COUNT(CustomerID) as Count FROM Customers GROUP BY Country;
- Countries are grouped and then counted using the count function.

Hands-on Lab

• Take 30 minutes to complete the hands-on Lab: String Patterns, Sorting & Grouping

Exercise: True or False

True or False

 Aggregate functions can be used in the WHERE clause without a select statement

Sub-Queries and Nested Selects

- •What is meant by sub_queries?
- •When should we use sub_queries?

What should be the output of the following SQL statement? Select EMP_ID, SALARY, AVG(SALARY) AS AVG_SALARY from employees

Correct statement without Group By

select EMP_ID, SALARY, (select AVG(SALARY) from employees) AS AVG_SALARY from employees

Breakout Room Activity

• Take 40 minutes to complete week 3 activity posted on Blackboard

Any questions