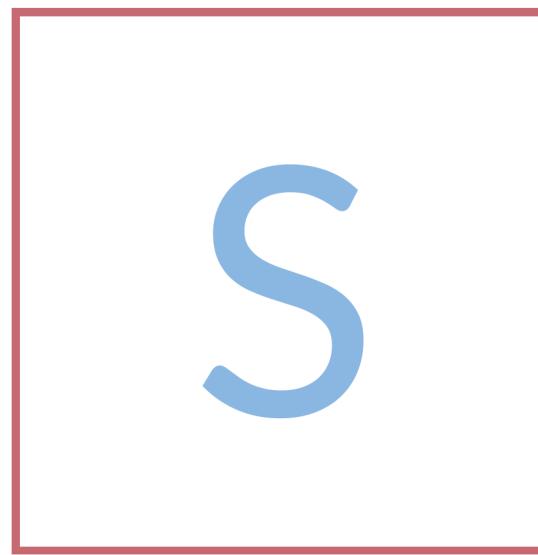


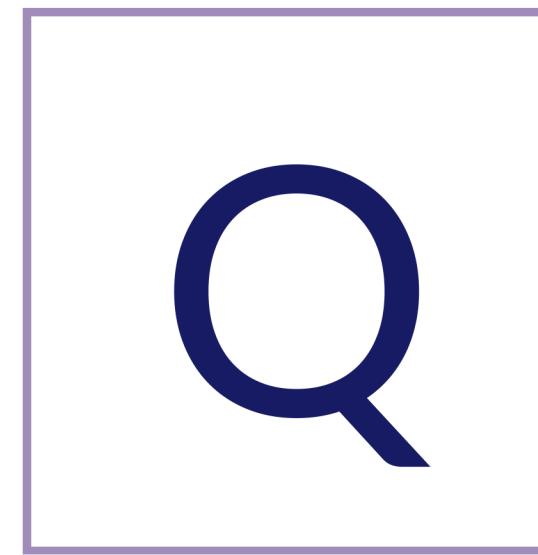
SQL Syntax Basics

Presented by Aml Elsayed

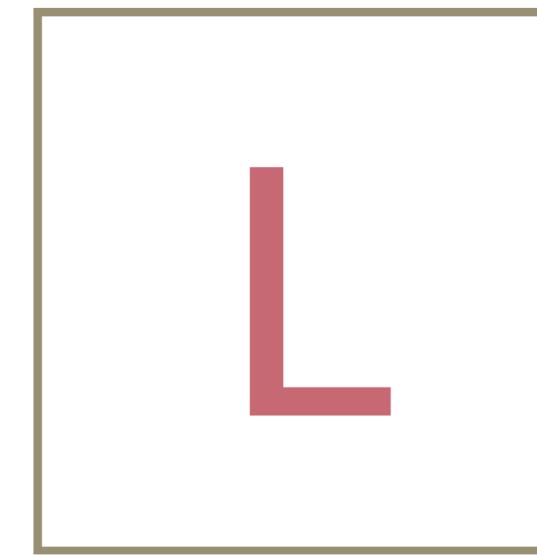
What is SQL?



Structured



Query



Language

SQL stands for Structured Query Language. It's a domain-specific language used in programming and designed for managing and manipulating data held in a relational database management system (RDBMS), or for stream processing in a relational data stream management system (RDSMS). It provides various commands for querying, updating, inserting, and deleting data from databases, making it a powerful tool for managing and interacting with databases.

Here is a Basic Breakdown:

1- Statements

2-Clauses

3-Keywords

1-Statements

SELECT : Retrieves data from one or more tables.

INSERT : Adds new rows of data into a table.

UPDATE : Modifies existing data in a table.

DELETE : Removes rows of data from a table.

CREATE : Builds a new table, index, or view.

ALTER : Modifies an existing database object, like a table.

DROP : Deletes an existing database object, like a table.

TRUNCATE : Removes all rows from a table.

2-Clauses

FROM : Specifies the table(s) to query from.

WHERE : Filters rows based on specified conditions.

GROUP BY : Groups rows sharing a property into summary rows.

HAVING : Filters groups created by the GROUP BY clause.

ORDER BY : Sorts the result set in ascending or descending order.

JOIN : Combines rows from two or more tables based on a related column between them.

ON : Specifies the condition for the join operation.

LIMIT : Limits the number of rows returned by a query.

OFFSET : Skips a specified number of rows before returning the result set.

3- Keywords

SELECT : Retrieves data.

FROM : Specifies the table(s) to query from.

WHERE : Filters rows based on conditions.

GROUP BY*: Groups rows sharing a property into summary rows.

ORDER BY*: Sorts the result set.

JOIN*: Combines rows from different tables.

ON*: Specifies the condition for joining tables.

AS : Renames a column or table.

DISTINCT : Retrieves unique values.

INSERT INTO : Adds new rows to a table.

UPDATE : Modifies existing data.

DELETE FROM : Removes rows from a table.

CREATE TABLE : Builds a new table.

ALTER TABLE : Modifies an existing table.

DROP TABLE : Deletes a table.

PRIMARY KEY : Defines a column as the primary key.

FOREIGN KEY : Defines a column as a reference to another table's primary key.

Tables, Columns and Rows:

In SQL, a database consists of tables, which are organized into rows and columns.

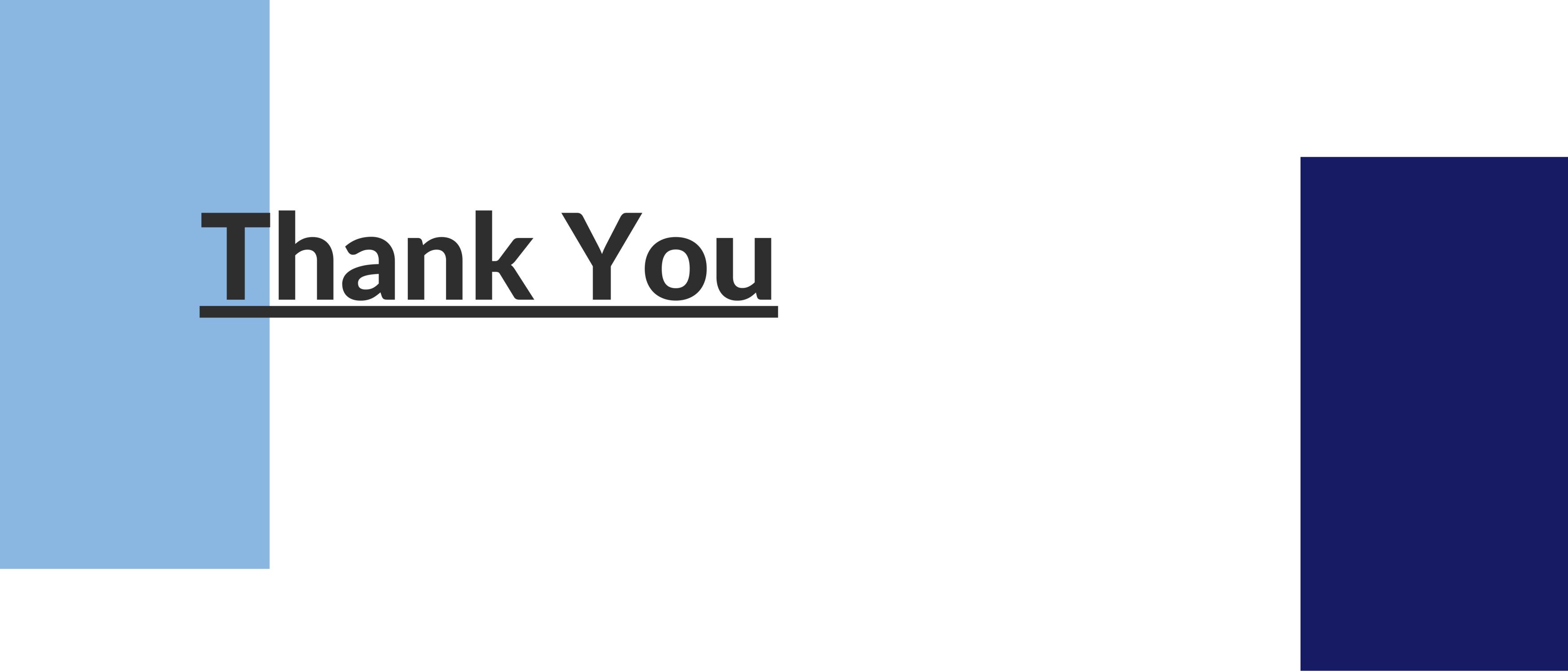
- **Tables** : Tables are the fundamental structure in SQL databases. They represent a collection of related data entries organized in rows and columns. Each table has a name and consists of one or more columns and zero or more rows.
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- **Columns** : Columns, also known as fields or attributes, define the structure of the data within a table. Each column has a name and a data type that specifies the kind of data it can store, such as integer, text, date, etc. Columns define the properties or characteristics of the data stored in a table.
- **Rows** : Rows, also known as records or tuples, represent individual data entries within a table. Each row contains data corresponding to each column defined in the table. Rows are horizontal arrangements of data in a table and represent individual instances or records of data.

Together, tables, columns, and rows form the foundation of SQL databases, providing a structured and organized way to store, retrieve, and manipulate data efficiently.

Conclusion

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In conclusion, SQL (Structured Query Language) is a powerful domain-specific language used for managing and manipulating data stored in relational database management systems (RDBMS). Its primary uses include querying databases to retrieve, insert, update, or delete data, as well as defining and managing database structures such as tables, indexes, and views. SQL is essential for working with relational databases and is widely used in various applications across different industries. Understanding SQL fundamentals, including basic query components, database design principles like normalization, and optimization techniques, is crucial for efficient and effective database management and development.



Thank You