Introduction to SQL

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SQL

- SQL means **Structured Query Language**.
- The acronym **SQL** is derived from **Sequel**.
- SEQUEL was renamed SQL because **SEQUEL** was a trademark of ISO & ANSI
- In Relational Database Management Systems, SQL supports definition, manipulation, and control operations.
- SQL is used to manipulate and retrieve data stored in a database.

Benefits of SQL

- Provides:
  - Portability across systems
  - Complete database language
  - SQL standards
- Retrieves data from a database
- Inserts new records into a database
- Deletes records from a database
- Updates records in a database

SQL Sub Languages

SQL is segregated into DDL, DML, DCL, and TCL.
Data retrieval: SELECT

DDL	DML	DCL	TCL
CREATE	INSERT	GRANT	COMMIT
ALTER	DELETE	REVOKE	ROLLBACK
DROP	UPDATE		SAVEPOINT
TRUNCATE			

DDL

- Allows users to define the database and its objects.
- The set of relations in a database must be specified to the system by means of Data Definition Language.
- Database schema is specified by a set of definitions expressed by a Data Definition Language.

DML

- DML is a language that enables users to access or manipulate data as organized by the appropriate data model.

- DML manipulation commands are the most frequently used SQL commands.
  - They are used to query and manipulate existing objects, such as tables.

DCL

- DCL is a language that provides users with privilege commands.
- DCL is the segment of SQL used for controlling access to data in a database.
- DCL allows protecting tables and other objects created by a user from accidental manipulation by another user.
- DCL grants privileges (insert, read, write, select) to others, and allows them to perform operations within their scope.
  - Privileges determine whether or not a particular user can perform a command.

TCL

- A transaction is a logical unit of work that contains one or more SQL statements

- When a transaction makes multiple changes to the database, --
  - either all the changes succeed when the transaction is committed,
  - or all the changes are undone when the transaction is rolled back.


Thank you!