



Introduction to SQL

Presented by



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
- SQL is a special-purpose, nonprocedural language.
 - It is a standard programming language used for interacting with and manipulating databases.
- In Relational Database Management Systems, SQL supports definition, manipulation, and control operations.
- SQL is used to manipulate and retrieve data stored in a database.
- It is the most commonly used query language available.



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
- Creates new databases



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.
- It allows the specification:
 - Structure for each table and integrity constraints
 - Security and authorization information for each table
 - The physical storage of each table on disk



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

- SQL can be used to control transactions.
- Different transactions that can be performed.
 - Collections of operations that form a single logical unit of work.
 - Ensuring that all changes made are either committed to the database, or if there is a failure at any point of time, none of the changes are committed in the database.
 - Transaction changes can be made permanent to a database only if they are committed.
 - Transaction operations are executed between the start and end of the transaction.

