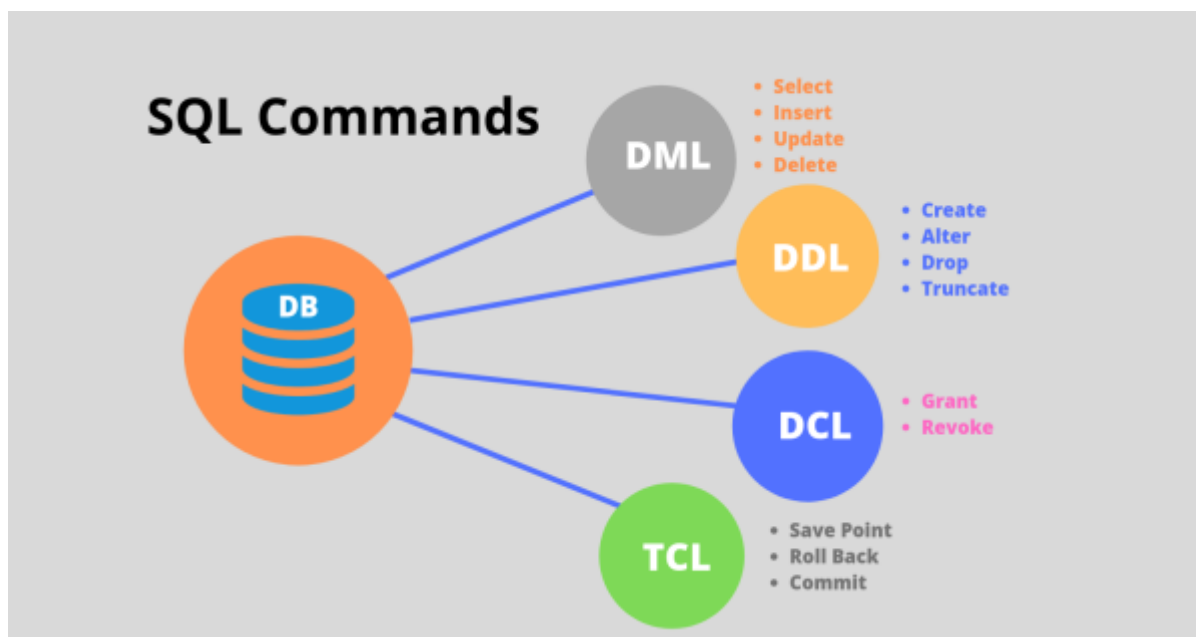# LU02c - SQL

SQL (Structured Query Language) is a standard language for managing and manipulating relational databases. It provides a set of commands for defining, querying, manipulating, and controlling data.
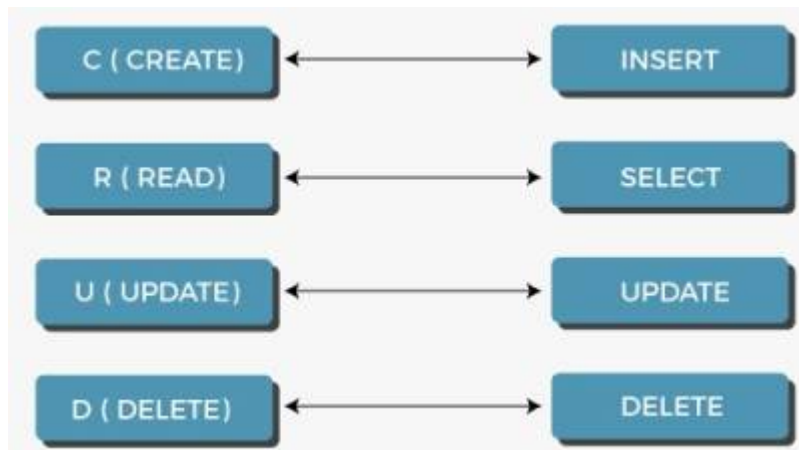
In detail, SQL consists of four sub-languages, each of which is responsible for one specific set of operations:

- **DDL = Data Definition Language**: DDL commands are used to create, modify, and delete database structures, e.g. to create database instances and tables, to alter table structures or or to ftop databases and tables.
- **DQL = Data Query Language**: DQL commands are used to retrieve data from the database, e.g. to select table contents with and without filters and in a specific order.
- **DML = Data Manipulation Language**: DML commands are used to insert, update and delete data in tables. DML commands are therefore used to manage table content: to insert new content or to update and delete using certain filters.
- **DCL = Data Control Language**: DCL commands are used to control access to the database. This includes the management of authorisations and the administration of user profiles. The central questions here are: „Which user is allowed to access which database object?"

Correlation of SQL and CRUD

CRUD operations is to be applied in all three layers of a three-layers-web-architecure (presentation layer, logic layer/server, data layer). Within the data layer the CRUD operations are realised as follows:

Vocabulary

English	German
to provide	bereitstellen
to querty	(an-)fragen
to consists of	bestehen aus
instance	Exemplar, Komponente
to alter	verändern
therefore	daher
to access	zugreifen
to be allowed to	darf

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Last update: **2024/08/13 17:30**