PostgreSQL

General

- open source database management system
- one of the most commonly used systems
- many extensions, highly customizable
- de-facto standard for (relational) spatial data

Relational

- PostgreSQL is a **relational** database system
- **Relational** systems organize their data into *table rows*
- duplicates are not allowed
- system handles relationships between *tables*

Definitions

There are some concepts, that are important while working on a database. Some of these definitions might have other meanings in other contexts.

- **dataset** (= tuple) is one row in a data table. Duplicates are not allowed.
- **attributes** describe a dataset. They are like the columns in a data table and must have a common data type.
- **primary key** is one (or more) attributes that identify a dataset unequivocally.
- **foreign keys** are attributes that refer a dataset to a primary key of *other* tables.
- **cardinality** in simple terms, the cardinality defines the type and amount of connections of one or more foreign keys

Other RDBMS

There are also other (R)DBMS available.

MySQL / MariaDB

- Most commonly used on web-servers
- From a practical point of view, the same system

- since 2008 MySQL is **not** open source anymore. MariaDB is the open source alternative to MySQL

SQLite

- file-bound system, that does not require a server
- common data exchange format
- drivers exist for every OS and any programming language

SQL Server

- commercial system by Microsoft
- very widely spreaded
- targets (medium and) large businesses

oracle

- most frequently used RDBMS
- has a Java compiler integrated (which is nice for Java applications)

Non- or not-only RDBMS

Google Firebase

- cloud based non-relational document database
- **extremely** scalable and fast
- no setup, installation, initialization, table creation or data modeling needed. Just connect and save data. (Thus rapid development possible)

AWS DynamoDB

- pretty much like Google Firebase (not in a technical sense)
- 25 GB free quota (that's really, really a lot)
- a bit of initialization is necessary (compared to Firebase)

MongoDB

- flagship of open-source non-relational databases
- easily scalable, but you have to do it on your own
- powerful query language