Intro to RDBMS and PostgreSQL

A **database** is collection of related data. A **DBMS** *(Data Base Management System)* is a collection of programs used to create and maintain a database.

DBMS is useful for:

- Storing data in a structured format.
- Allow concurrent use of data (many users).
- Control access to the data (admin privileges).
- Maintaining data integrity (maintain consistency and accuracy of data).
- Data backup and recovery.

Types of DBMS
The following DBMS's differ in the form by which they store and organize data. We will focus primarily on **Relational Database Management Systems**, but it is importnant to know that other forms exist:

1. **Hierarchical Database Management Systems**: A hierarchical database is a design that uses a one-to-many relationship for data elements. Hierarchical database models use a tree structure that links a number of disparate elements to one "owner," or "parent," primary record.
2. **Network Database Management Systems**: Network database management systems (Network DBMSs) use a network structure to create relationship between entities.
3. **Object-oriented Database Management Systems**: Object oriented DBMS support creation and modelling of data as objects. An object is a person, place, or thing.
4. **Relational Database Management System**: A relational database refers to a database that stores data in a structured format consisting of tables, rows and columns.

Relational Databases:
A Relational Database is a collection of data organized into *tables*.
Tables contain:

- **Columns** of data categories.
- **Rows** with particular instances of that data category.

RDBMS Vendors:
A relational database vendor is an entity that offers one or more databases to customers for license or sale. Some are open-source and free. A few examples include:

- Oracle DB
- MySQL
- Microsoft SQL Server

- PostgreSQL
- Maria DB
- SQLite

What is PostgreSQL (Postgres)?

PostgreSQL, also known as Postgres, is a free and open-source relational database management system emphasizing extensibility and SQL compliance.

Besides supporting SQL, Postgres also supports **PL/pgSQL** (Procedural Language/PostgreSQL) which is a procedural programming language. It closely resembles Oracle's PL/SQL language.

The design of PL/pgSQL aimed to allow PostgreSQL users to perform more complex operations and computations than SQL, while providing ease of use.