

Databases

Installing a DBMS (PostgreSQL)

João R. Campos

Bachelor in Informatics Engineering
Department of Informatics Engineering
University of Coimbra
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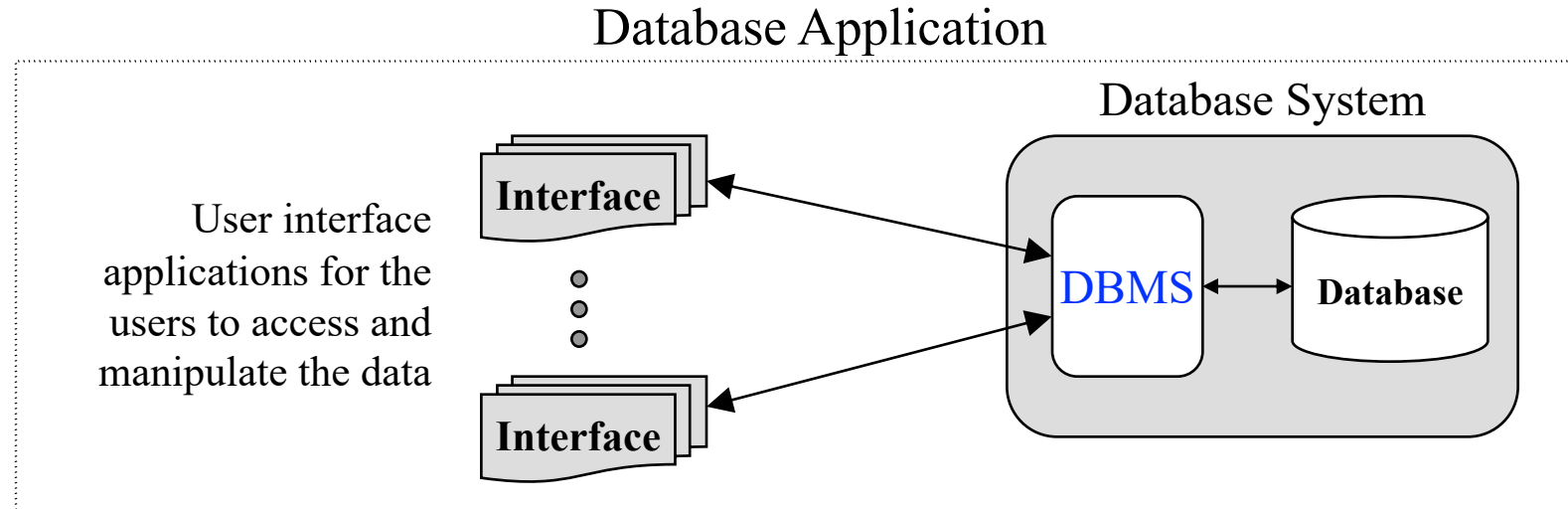


Outline

- Database Management Systems (DBMSs)
- Installation of PostgreSQL
 - *psql*
 - *pgadmin*
- Setup the database for the demos seen in the T and TP lessons

Database Management System (DBMS)

- A **Database Management System (DBMS)** is software package to define, manipulate, retrieve and manage data in a database



Some Alternatives Available

- Commercial



- Open source



Lightweight
(not a server)

NoSQL
column-oriented

Oracle Database

- Commonly referred to as Oracle DBMS or simply as Oracle
 - Oracle Corporation
 - First version in 1979, Oracle v2
 - Current version: [Oracle Database 21c](#)
- Multi-model database management system
- Commonly used for running Online Transaction Processing (OLTP), Data Warehousing (DW) and mixed (OLTP & DW) workloads
- Available by several service providers on-prem, on-cloud, or as hybrid cloud installation
- One of the the most complete and most used commercial DBMSs
 - It has been a market driver for many years!



PostgreSQL

- Free and open-source, commonly referred to as Postgres
 - University of California, Berkeley
 - First version in 1997, release 6.0 (successor to the Ingres database)
 - Current version: [16](#)
- Relational database management system (RDBMS), emphasizing extensibility and SQL compliance
- Is available for Linux, FreeBSD, OpenBSD, and Windows
- Many organizations use PostgreSQL as the primary database, e.g.:
 - Instagram, TripAdvisor, WhitePages.com, MusicBrainz, BASF, Sony Online

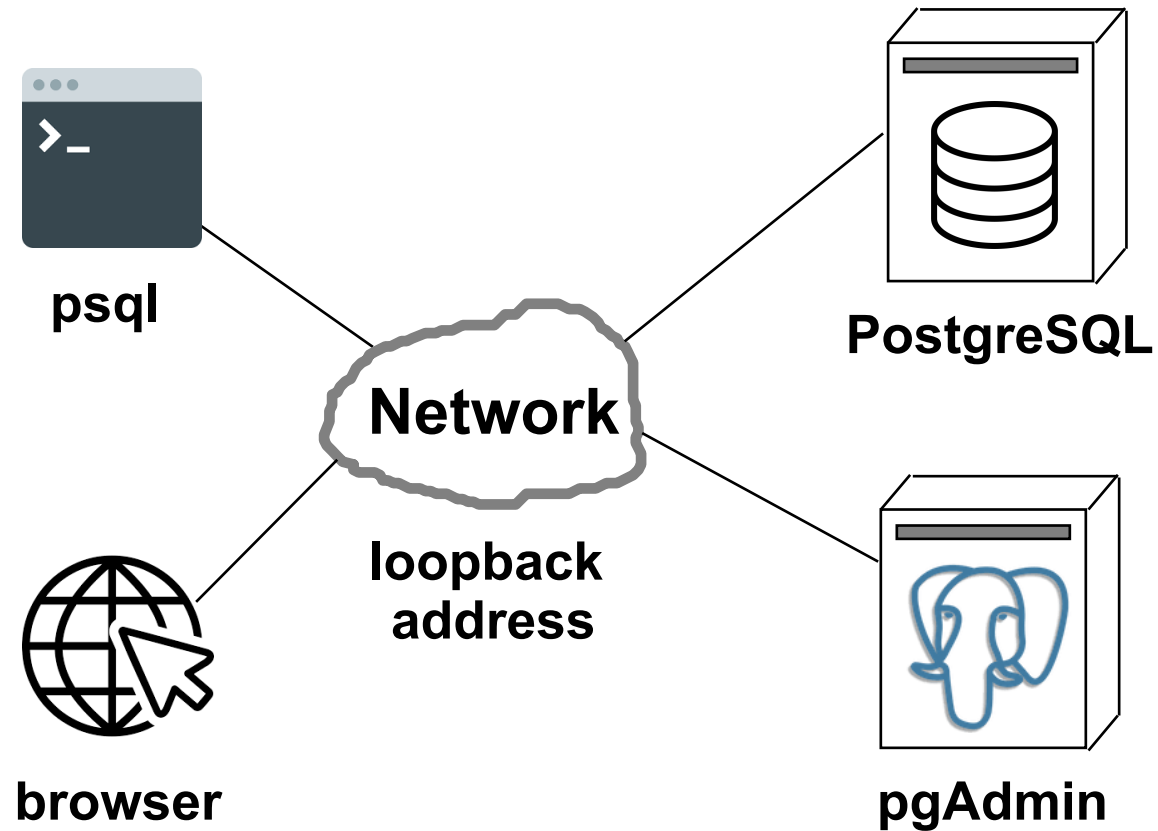




What are we going to do next?

- Install PostgreSQL
 - *psql*
 - *pgadmin*
- Setup the database for the exercises in the following lessons
 - Create user, database and schema
 - Create tables

The Outcome Will Be...





Native Installation of PostgreSQL

- Download the certified installer for the latest version from:
 - <https://www.postgresql.org/download/>
- Run the installer
 - Select what you want to install
 - *pgadmin* can be installed together with the DBMS
 - *psql* can also be installed (select Command Line Tools)
 - Set the directory where the database files will be stored
 - Define the password (*postgres*) for the *postgres* user (default superuser)
 - Select the port number to be used to connect to the server (default is 5432)
 - **Note:** remove Stack Builder Check option **after** installation



Native Installation of PostgreSQL

- Access the database via *psql* (important!)
 - **Windows:** add C:\Program Files\PostgreSQL\16\bin to PATH environment variable
 - **Linux/macOS:**
 - edit file ~/.bash_profile: `nano ~/.bash_profile`
 - add line: `export PATH=/Library/PostgreSQL/16/bin:$PATH`
 - exit nano (*ctr+x*)
 - reload: `source ~/.bash_profile`
 - Connect: `psql -d postgres -U postgres`



Practical Exercises

Solve the practical exercises made available
for this class

Q&A



The seal of the University of Coimbra is visible on the left side of the slide. It is a circular emblem with a blue border containing the text 'SITATIS' at the bottom and 'CONIMBRIC' on the right. The central part of the seal depicts a figure, likely a saint or scholar, standing next to a large, ornate building with multiple towers and arches.

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