

FALL 2018



APPLIED ENGINEERING DATA ANALYSIS, OPTIMIZATION AND VISUALIZATION

Databases (PostgreSQL)

JOSHUA RHODES, PHD

Research Fellow/Adjunct Professor, The University of Texas at Austin

Databases are convenient ways to store a lot of data

- Collection of information that is organized so that it can be easily accessed, managed and updated.
- “Too big to Excel”
- Easily updated/appended to

There are a couple types of database (not exhaustive)

- Relational databases (mySQL, etc....)
 - This model organizes data into one or more tables (or "relations") of columns and rows, with a unique key identifying each row.
 - Rows are also called records or tuples.
 - Columns are also called attributes.

Not all databases are relational

- Non-relational databases (noSQL, MongoDB...)
 - Can store multiple types of data in the same “row”
 - Popular in real-time web and big data applications
 - Structured and unstructured data
- We won’t cover these in this class

We will use PostgreSQL in this class

- PostgreSQL is a powerful, open source object-relational database system.
- It has more than 15 years of active development.
- It runs on all major operating systems.
- <https://www.postgresql.org/docs/9.4/static/release-9-4.html>

There are many more, choose your own adventure

<https://reflect.io/blog/analytics-101-choosing-the-right-database/>

Good luck

Connecting to our database via pgAdmin4

The image displays two side-by-side screenshots of the pgAdmin4 connection configuration dialog for a connection named 'me397'. Both screenshots show the 'General' tab selected.

Left Screenshot (General Tab):

- Host name/address:** db1.wrangler.tacc.utexas.edu
- Port:** 5432
- Maintenance database:** me397
- Username:** joshdr
- Role:** (empty)

Right Screenshot (SSL Tab):

- SSL mode:** Require
- Client certificate:** (empty)
- Client certificate key:** (empty)
- Root certificate:** (empty)
- Certificate revocation list:** (empty)
- SSL compression?**: A switch is set to **False**.

Both dialogs include standard buttons at the bottom: **Save**, **Cancel**, and **Reset**.