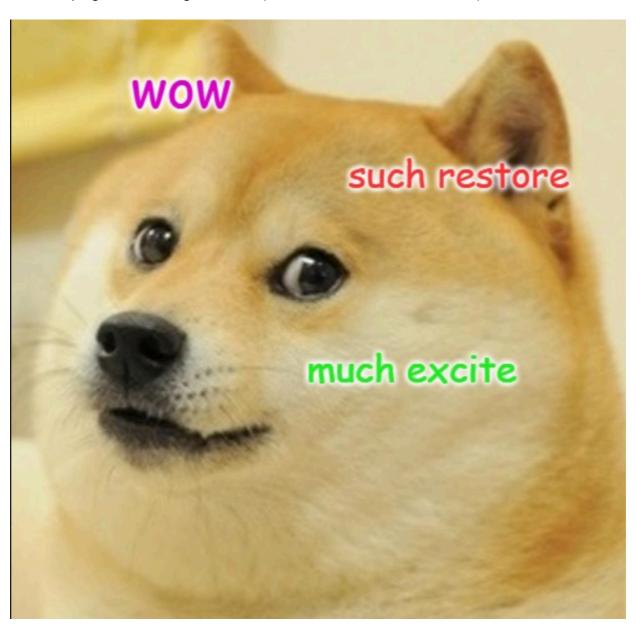
Session 3

Last time

• dumping and restoring database (Wow, such restore, much excite)



- Transformed the basic trees table, directly loaded from the csv file
 - Looked at idbase and decided it was not a good candidate for a primary key
 - Created a new primary key id in the trees table
 - Looked at the sequence that was created along the primary key

- Modified the data type of some columns:
 - remarkable as Boolean
 - geopoint2d as geolocation with the POINT data type
- Added a diameter column

Today

We look at **normalization** and how to properly design a database.

To design a **database** at this point means what data goes into what table, with what columns. In short what goes where.

It's the basis before all the other design decision we'll have to make.

We look at

- ERD
- OLAP vs OLTP databases
- · Normalization and Denormalization
- Normal Forms

Appplication

And then we normalize the treesdb_v02 database.

It comes down to a 5 step process

- identify the entities to export to a dedicated table
- · transfer the columns data
- · reconcile the trees table with the new table
- · check
- · remove the columns

and throughout this process we'll write many different types of queries.

Trouble installing and connecting

At this point, you should be able to connect to the postgresql server:

- connect locally with the postgres user or the local user (mac)
 - psql -U postgres -d postgres (Windows)
 - psql -U <username> -d postgres (Mac)

- · connect to the remote server with the epita user
 - o psql -h <ip_address> -U epita -d postgres
 - I'll give you the ip address of the remote server
- start stop monitor the server on your local machine (see below)
- · load the dump file with
 - pg_restore on the command line (iTerm or termimal on Mac or powershell on Windows)
 - in pgAdmin (not tested)

To check if the server is running on your local machine

On Windows

- · launch a powershell terminal
 - Win + X
 - select terminal (Admin)
- use pg ctl :
 - start: pg_ctl startstop: pg_ctl stop
 - restart: pg_ctl restart
 - check status: pg_ctl status

On mac

In a terminal window:

- brew services start | stop | restart postgres@16
- brew services info postgres@16

Sometimes you have to use sudo to start.

Let's go

get the course pdf from the github repo in

• github > SkatAl > epitadb > docs > 03 > S3-database-design-normalization.pdf