

Databases Foundations

Season 2024-III

Workshop No. 3 — DBMS

Eng. Carlos Andrés Sierra, M.Sc.
Computer Engineering
Universidad Distrital Francisco José de Caldas

You are **learning a lot**, I am proud of you. However, I will not be happy until I get *the last drop of engineering from you*. So, now I want you create **UDSQL**, your own DBMS.

Actually, you just need to create a **first version**. You *do not need to validate syntax*, just apply operations. Using **python**, you could create a simple **command line application** where if the user writes **EXIT** you stop, otherwise you will *process query*, assuming it is **always in good format**.

To make a first **MVP**, next are the *requirements*:

- Each **table** should be *saved in a file*, similar to a **.csv**. *Just one primary key*, no one *foreign key*, per **table**. You should use *non-common symbols* to separate both columns and rows into the file.
- As for *each table* you should *create a file*, it is recommended to use **pickle python package** to save a **dictionary** with the **metadata** for your *database general definition*, it means, **tables with its fields and properties**.
- Operations as **insert**, **update**, and **delete** should be unary, it means, just *one operation per query* and just return a **message of success** or **failure** (*bad data type or invalid field name*).
- **Retrieval** of information using **select** could have *projection*, simple *selection* with logical operators, at maximum; *Operations* as **sort**, **group by**, are not necessary, just a *simple version*.

As a friendly reminder, you **cannot use libraries as pandas**, so you need to create codes to read a file as a list of lines, and try to process in that way, as **lists of information**.

Carlos Andrés Sierra, Computer Engineer, M.Sc. on Computer Engineering, Titular Professor at Universidad Distrital Francisco José de Caldas.

Any comment or concern related to this document could be send to Carlos A. Sierra at e-mail: *cavirguezs@udistrital.edu.co*

One approach you could use is to create a *class* to receive *any file, any definition of operation*, and apply the operation over the file.

Good luck!

Deadline: **Saturday, February 8, 2025, 5:00 PM.**