# Список 03 – Домашнее Задание

# Системы Управление Базами даннами

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*Предмед: Введение в профессиональную деятельность*

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**1. Queries formulation in Relational Database Management Systems (RDBMs).** Take in account the instructions defined in Github repository in folder **lab04_dbms** and follow the next instructions:

[1] Install the necessary programs to execute the laboratory 04:

**- dbeaver**: program for visualize physical E-R diagram for relational databases;

**- postgreSQL 15:** database management system (free license and open source). For complete the installation, it is necessary add the pgAdmin, Stack Builder and database connectors ODBC and JDBC in their last versions;

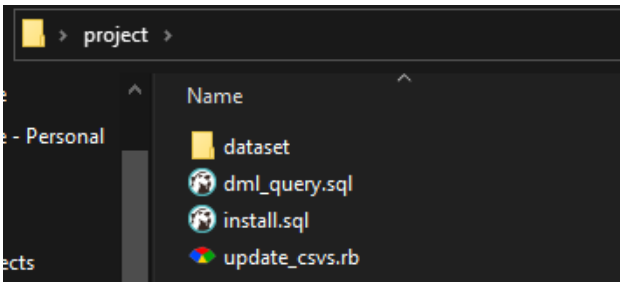
**- ruby:** program to install all necessary components to run scripts in programming language Ruby

All the programs are available in the next link:

https://drive.google.com/drive/folders/1saAq8z6R1GYcxRfaHxiIFdBkNGcoqKiB?usp=sharing

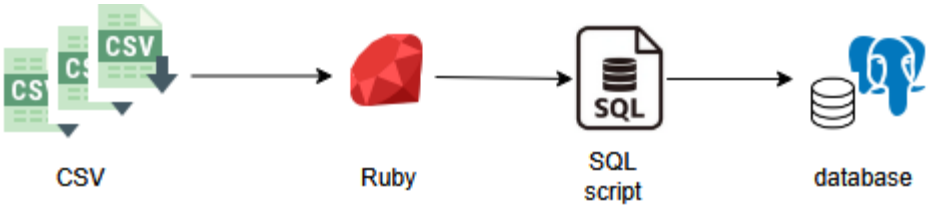
[2] Follow all the instructions in the document **lab04_rdbms/instructions.txt** and make the necessary configurations in environment variables and running the terminal commands using windows power shell. Execute the instructions 1-3.

[3] Create a folder in some place of your hard disk called **project**, which will contain the folder **dataset** with all the 68 CSV files of the tables for Microsoft database Adventure Works 2014. Inside of folder dataset/ need contains the script install.sql. At the same level of folder **dataset**, include the ruby script **update_csvs.rb** and the sql script **dml_query.sql.** The tree of files has to look like this:

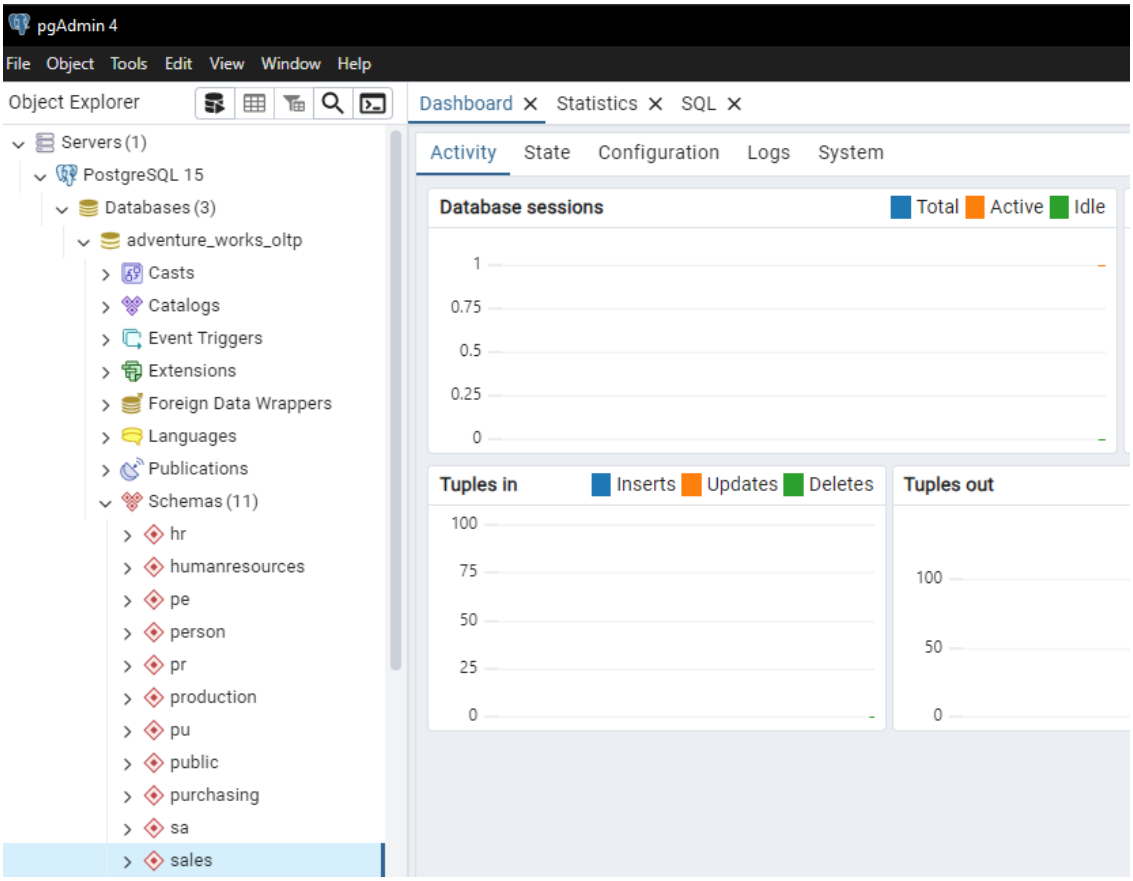



[4] Following the instructions 4-5 in file **instructions.txt**, create the database **adventure_works_oltp** and running the ruby and sql commands using power

shell terminal, execute the process ETL (extract-transform-load) having as final result the **Adventure Works 2014** database in RDBMS PostgreSQL.




After finalize the process of ETL, you need open program pgAdmin4 and visualize the database **adventure_works_oltp** with all its schemas.




[5] Using the program Dbeaver, generate automatically the physical model for each schema of database Adventure Works 2014. After make this process, we have the next schemas:

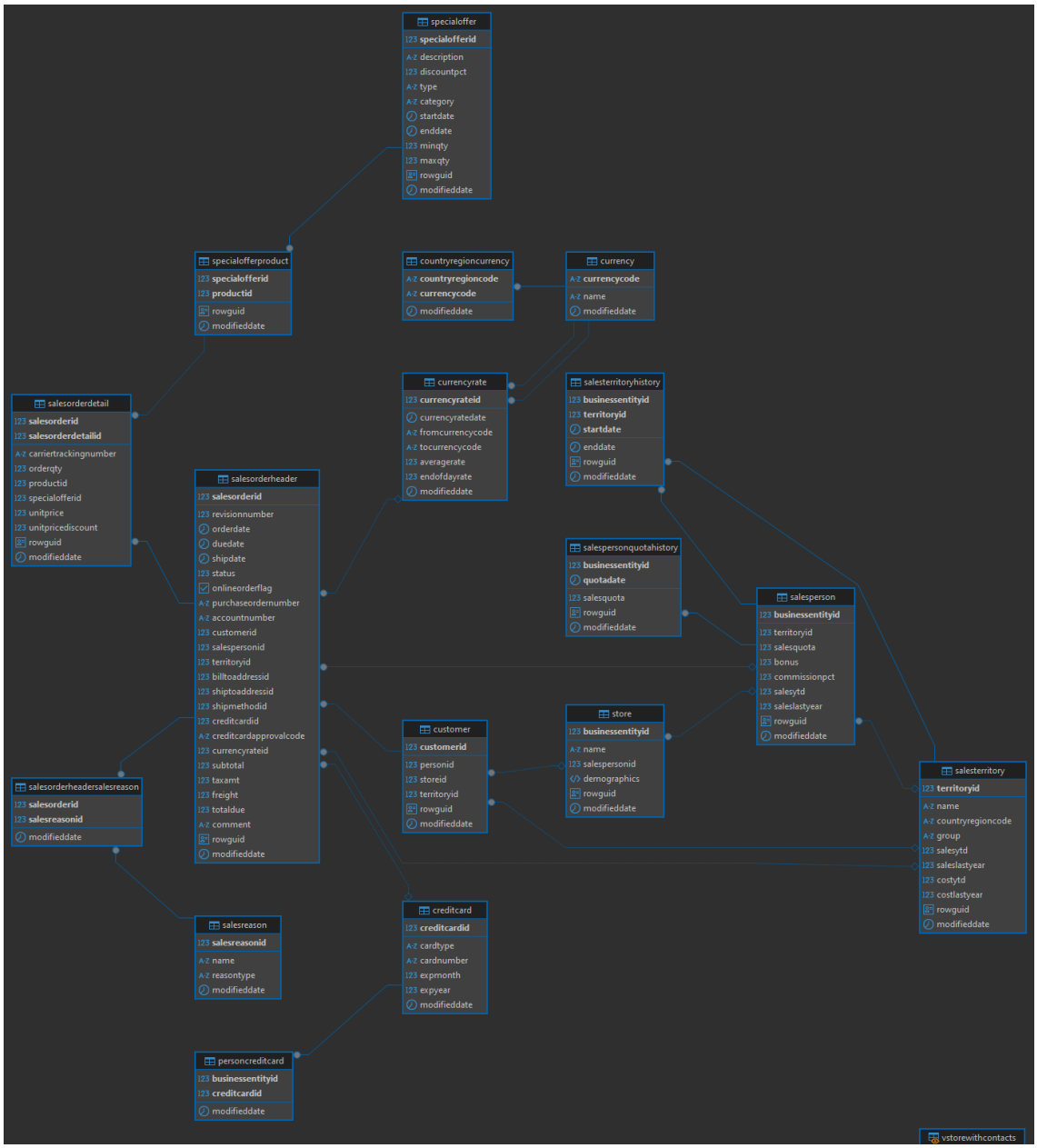
- human resources

- purchasing

- production

- sales

The schemas in dbeaver program need looks like the image bellow:




[6] Choose any of the schemas of database **Adventure Works** generated in the last step and proceed to build 3 queries taking in account the tables structure, its columns, primary keys, foreign keys and relationships with another tables. Those queries you need store in some file with extension **.sql**

- Operation of Filtering: 1 query using **select** + **from** + **where** + **order by**

- Operation Join: 1 query using **select** + **from** + **inner join** + **on** + **where**

- Operation of Grouping: 1 query using **select** + **from** + **group by** + **having**

[7]. Create a backup of the database Adventure Works 2014 using file with extension **.backup**