Practice Class 5

Objectives

Expressions of Relational Algebra (RA).
Construction of *Queries* in RA.

Introductory Note

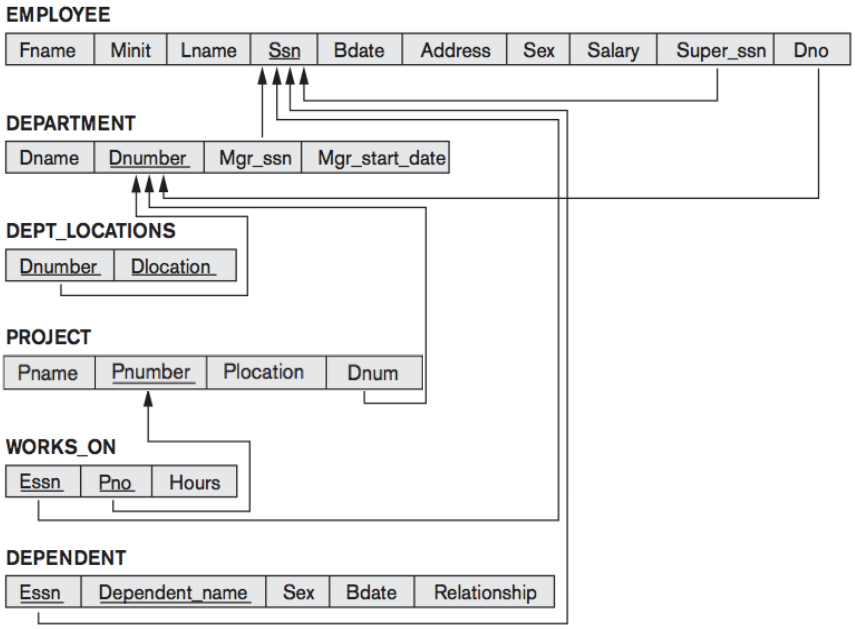
The resolution of the exercises below assumes you should start by writing the RA queries on paper. Then you can check your syntax and observe the query results using the "relational algebra calculator" tool available at the following address:
http://mednat.ieeta.pt:8102/racalc/ *(available within the UA VPN)*

The tool includes the datasets used in the discipline (Company, Stock Management and Prescription).

You must follow the response template provided.

Assignment 5.1

Based on the relational scheme of the company (figure below), developed in the theoretical classes, define the following queries using expressions of relational algebra:



a) Get a list containing the project and employees (ssn and full name) who work there;

b) Get the name of all employees supervised by 'Carlos D Gomes';

c) For each project, list the name and the number of hours (per week) spent on this project by all employees;

d) Get the name of all the employees of department 3 who work more than 20 hours per week on the project to 'Aveiro Digital';

e) Name of employees who do not work on projects;

f) For each department, list its name and the average salary of female employees;

g) Get a list of all employees with more than two dependents;

h) Get a list of all employee department managers who do not have dependents;

i) Get the names and addresses of all the employees who work on at least one project located in Aveiro but your department has no location in Aveiro.

Assignment 5.2

Based on the relational scheme developed in practical class 3 for the Stock Management System database – Order Module, define the following queries using relational algebra expressions:

a) List of suppliers who have never had orders;

b) The average number of units ordered for each product;

c) The average number of products per order; (note: no matter the number of units);

d) List of products (and quantities) provided by each supplier;

Assignment 5.3

Based on the relational scheme developed in practical class 3 for the Database of the Electronic Prescription System of Medicines, define the following queries using expressions of relational algebra:

a) List of patients who have never had a prescription;

b) Number of prescriptions per medical specialty;

c) Number of prescriptions processed by the pharmacy;

d) For pharmacists with registration number 906, a list of their drugs never prescribed;

e) For each pharmacy, the number of drugs each pharmacist sold;

f) Patients who have had prescriptions from different doctors.