

DATABASES - PROJECT REQUIREMENTS

The project should have an economic theme (from finances, accounting, statistics etc.). It can have a theme such as *Managing an airline* but in that case, the focus will be on the economic part, for example: managing the costs, calculating the profit margins according to costs and load-factor, and so on. The project must contain all of the following elements:

1. A description of the project (1/2 page)
2. The database schema for the project. The schema must show the relation between the tables like in the model:
http://bd.ase.ro/uploads/databases/HR_ENG.png
3. Constructing the database: tables and constraints, exemplifying DDL statements on the tables: CREATE, ALTER, DROP (minimum 7 statements)
4. Using DML statements: INSERT, UPDATE, DELETE, and MERGE (minimum 10). **Mandatory**, a table must contain a row with the name of the student and a print screen of that row must be included in the project. In case the print screen is missing the grade will be 2.
5. Diverse and relevant SELECT statements for the project theme (minimum 15) that will contain (combined) all of the following elements:
 - >, =, <=, !=, IS NULL, LIKE, IN, BETWEEN, ANY, ALL;
 - Joins (inner, outer);
 - Using aggregate functions, GROUP BY, HAVING;
 - Using single row functions (mandatory: TO_CHAR, TO_DATE, EXTRACT, SUBSTR, SYSDATE, DECODE, CASE, NVL);
 - Using the CASE statement;
 - Using UNION, MINUS, INTERSECT;
 - Simple and correlated subqueries;
 - CREATE/INSERT/UPDATE/DELETE + SELECT;
 - Constructing and manipulating other objects of the database: views, indexes, synonyms and sequences;
 - Hierarchical queries (CONNECT BY, PRIOR, LEVEL, SYS_CONNECT_BY_PATH);

Every SQL statement will be accompanied by the problem statement and the **print screen** of the obtained result.

REQUIREMENTS FOR THE PROJECT PRESENTATION

1. The projects will be written only in English;
2. The projects will be presented only in digital format: doc(x) or pdf. All the projects from a group will be brought on a single USB flash drive;
3. The project must be defended at the respective group. Projects send by email will not be graded;
4. For the grade, it will matter the content of the project but also the way it is presented and the accuracy of the explanations;
5. The database schema and all the other elements of the project must be ORIGINAL;
6. The project will be developed using an Oracle database.