

Bases de Datos

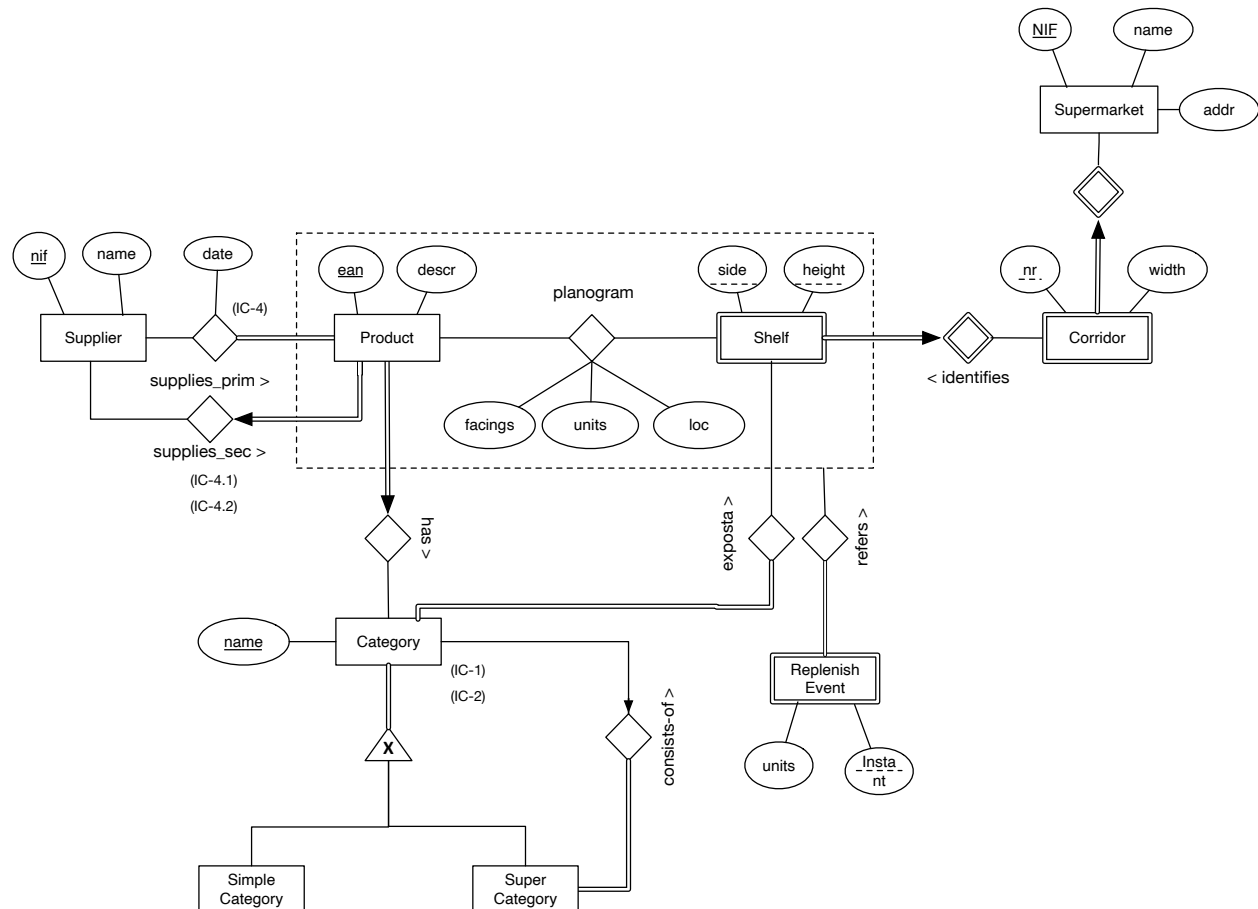
2020/2021

Project Assignment - Part 2

The second part of the project aims at creating, populating, and querying a database that implements the Entity-Association model presented.

Entity-Association Diagram

Consider the Entity-Association diagram that will be used in the next sections¹:



¹ N.B.: The diagram presented is a simplification of the domain presented in the first part of the project (Part 1) and is not the solution, nor part of the solution.

Along with the following Integrity Constraints:

- (IC-1) Categories cannot **consist** of themselves
- (IC-2) Categories cannot **cyclically consist** of one another
- (IC-3) The instant of the last **reposition** can never be into the future
- (IC-4.1) For a given Product, a supplier cannot be simultaneously a Primary and Secondary Supplier
- (IC-4.2) A product can only have at most 3 Secondary Suppliers
- (IC-5) A Product can only be **exposed** in one of the Shelves to which it is **associated**

Work to be developed

Translation to SQL

1. Using the SQL (DDL) language, present the statements to create the database **corresponding to the Entity-Association model developed above**. Ensure that data types and field sizes selected are the most appropriate. The constraints on each field, row and table must also be specified. Ensure that **not null, check, primary key, unique, foreign key** constraints are appropriately used. The use of accented characters and cedillas should be avoided.
2. List all the constraints that exist in the Entity-Association model that cannot be captured (implemented) in the SQL schema, writing them as comments to the respective tables.
3. Ensure that integrity constraints corresponding to IC-2 and IC-3 are appropriately implemented

Database Loading

Define in SQL (DML) all the **insert statements** that you find necessary to cover specific characteristics that real data scenarios can have in order to confirm the expected results of the queries.

The creation of records and the loading of the database can be carried out through the method that you consider to be most appropriate (manually, Excel sheet, SQL script, Python, PHP, or other).

SQL Queries

- A. List all products (EAN and description) that have been replenished in more than 15 units, after 25/04/2021 in the “Milk” category.
- B. Given the EAN of a product, display the name and NIF of all its suppliers (both primary and secondary).
- C. Display the number of sub-categories (direct descendants) of the “Milk” category.
- D. What is the name and NIF of the supplier who supplied more categories.
- E. List the primary suppliers (name and NIF) who supplied products in all simple categories.

- F. List the aisles that contain products from all primary suppliers that are not secondary suppliers of any products.

Evaluation

The project will be evaluated from the submission that should contain all the answers to the items requested above. Oral discussions may be requested to randomly selected groups. The following table indicates the valuation of each part of the work to be developed.

Item	Grading (0-20)
Translation to SQL	4.0
Integrity Constraints	2.0
Database Loading	6.0
SQL Queries	8.0

The quality (in terms of organisation, indentation, and simplicity) of the SQL scripts will also be evaluated.

Submission

The submission must be a structured **zip** file named `project-db-GG.zip`² where GG is the number of the group as follows³:

cover.pdf	A PDF with the name of the model and the corresponding constraints The report should start with a cover page with the title " SIBD Project - Part 2 ", with the name and number of students , the relative percent of each student's contribution , together with the total effort (in hours) that each element of the group dedicated to the project , the number of the group , the shift to which the group belongs , and the name of the laboratory teacher . The report can have at most one page where groups can write down notes concerning aspects they consider relevant.
schema.sql	File with the schema creation instructions

² ⚠ Only ZIP or GZ formats are accepted. Other archive formats (such as RAR) are not accepted.

³ Penalties will apply to the submissions that do not meet the structure requested.

	<p>This file should cleanly drop any existing tables before recreating them.</p> <p>The constraints that exist in the Entity-Association model that are not captured (implementable) in the SQL schema should be added as comments to the corresponding tables.</p>
queries.sql	<p>File with the SQL Queries</p> <p>Please ensure that queries are clearly marked using comments.</p>
populate.sql	<p>File with the scripts that populate the database</p> <p>The script should be runnable on POSTGRES on db.tecnico.ulisboa.pt</p>
output.txt	<p>File with the output of each query</p> <p>Please make sure that the output of each query is clearly marked.</p>