TÉCNICO LISBOA

MEEC

Information Systems and Databases

SIBD Project - Part 2

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1 Project Delivery Considerations

1.1 Tables, fields and constrains naming

Given that the fields that make up the tables often have similar names, it was necessary to define a naming system that would allow them to be differentiated.

In order to do so, we decided to take the first letter of each of the words that compose the table's name and use this combination to identify foreign fields. As an example, let's look into the weak entity "boat". This uses as primary key its national identifier (cni) and the name of the country where the boat is registered. However, the boat also has a name. This way, to distinguish unambiguously both fields, the name of the country was mapped into the field c_name, thus make possible to know from which table the field was originally from.

Moreover, we also choose to name the several constraints existing in the schema in order to simplify the debugging process, since SQL prints to console the name of constrain being violated. Below, it is possible to see the chosen naming convention:

- **primary key** - pk_current_table;
- **foreign key** - fk_current_table_reference_table;
- **check** - ck_current_table_description;
- **unique** - uk_current_table_field.

1.2 Data types and formats

Regarding data types, we searched online and in the slides for the most commonly used ones for each field in the database. The most import ones to mention are listed below:

- **country.flag** | varchar(2083) | We decided to store the url of the flag, because storing images on this sort of databases is not ideal;
- **country.iso_code** | varchar(3) | Chosen accordingly to ISO 3166-1 Alpha-3 Code;
- **boat_class.max_length** | numeric(5, 2) | The biggest boat in existence has a length of 458.46 m;
- **boat.cni** | varchar(15) | Every boat in Europe has a fourteen digit code accordingly to ISO 10087:2006.

1.3 Integrity Constraints

Integrity Constraints 4 and 5 are possible to implement directly in the database schema. Integrity Constraints 1, 2, 3 and 6, on the other hand, have a much higher complexity since they need to interact with multiple records in the table or even with other tables. To implement the needed logic, it is necessary to create functions to use inside the check constrains of the tables.

For this part of the project, we placed this functions in a different file (functions.sql) and left comments inside the schema stating where this constrains would need to be placed.