ETSI
ESCUELA TÉCNICA SUPERIOR DE INGENIERÍA

Information Systems – Design & Development

Project

Objective

Build an Information System by carrying out the phases of the conceptual modelling of a database, transformation to the relational model and implementation with a programming language.

Technologies

- Integrated development environment - IDE (Netbeans recommended)
- Java
- Swing graphic environment
- Oracle Database Management System

Requirements

The project will consist of the design and development (implementation) of an Information System whose requirements are described in the following text:

The Police of Sildavia (fictitious country) needs to have better control of the expert staff in certain matters that helps them to resolve complicated cases. To do this, it has been thought to maintain a simple database with the following information: experts can be in different areas of knowledge (computer science, psychology, forensics, etc.). You must keep your name, sex (M or F), nationality and your specialty. Each police case also has a name, as well as a start and end date (optional). The experts collaborate in each case on different dates. In addition, it is also necessary to keep a small description that details what type of collaboration was carried out in each case.

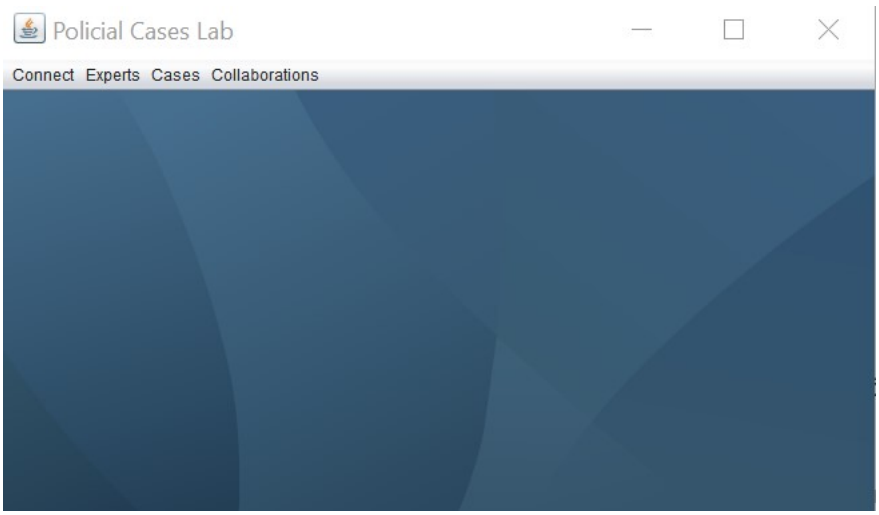

Figure 1. Main Menu

The application should show a menu of options similar to the one shown in Figure 1.

The "Experts" Menu will show a submenu "Experts Management" that will open a new window

similar to the one indicated in Figure 2. When the "Experts Management" window is opened, the information of all the experts in the EXPERT table will be displayed. The "Filter by country" button will have the function of showing the experts of a certain country (the one that is written in the text box). The "List all" button will have the function of showing all the experts of the EXPERT table. Using the "Count" button will show how many male or female experts (M or F) there are in the database. To perform this operation, you must create a stored procedure that calculates the number of experts by gender.

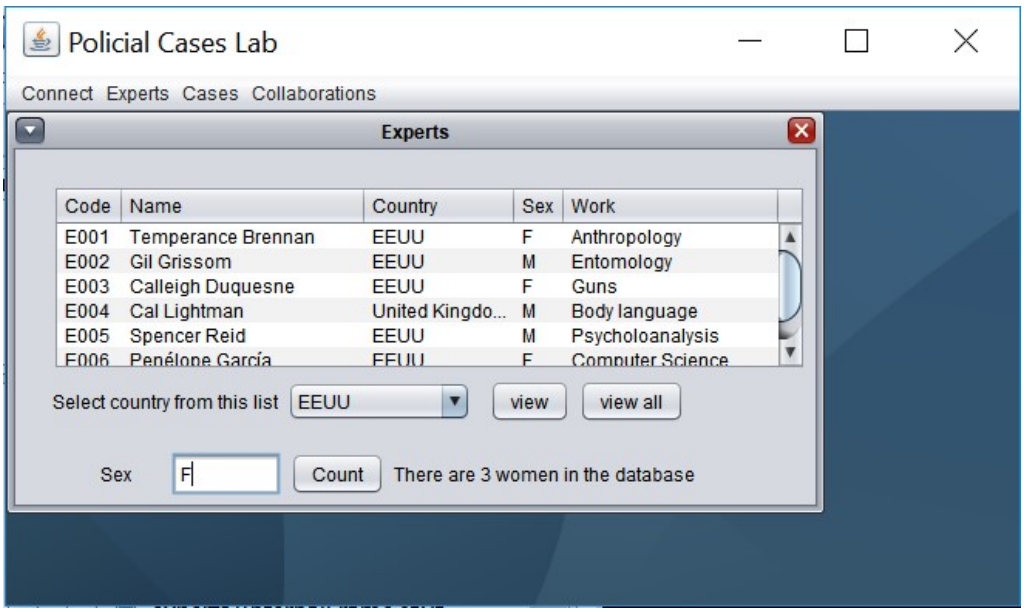

Figure 2. Submenu “Expert Management”

The "Collaborations" Menu will have a sub-menu with the following options: "Insert", "Update", "Delete" (which will allow inserting, updating and deleting collaborators) and "Collaboration Management" in which you can request the code of a case and showing its associated data the result in the form of a table (see Figure 3)

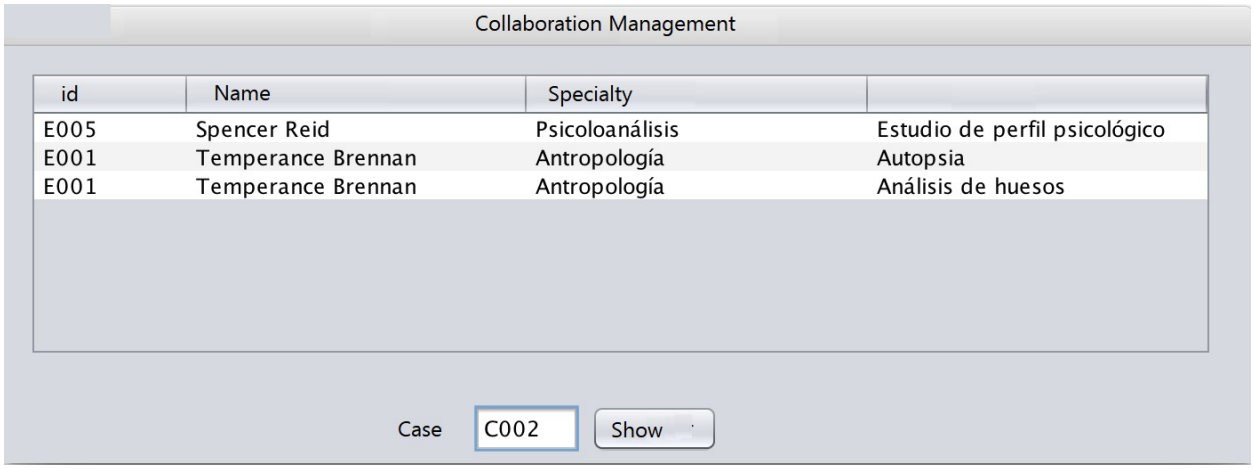

Figure 3. Collaboration Management

Finally, the "Collaborations" menu will have a submenu "Insert Collaboration" which will check if there is an Expert in the EXPERT table. If it exists, that code will be inserted in the COLLABORATES table and if it does not exist, all the data must be requested and the new Expert must be inserted in the EXPERT table before inserting the tuple in the COLLABORATES table. Next, check if the Case exists in the POLICIAL_CASE table. If it exists, that code will be the one inserted in the COLLABORATE table and if it does not exist, all the data must be requested and the new case must be inserted in the POLICIAL_CASE table before inserting the tuple in the COLLABORATES table. In case any of the operations included in this **transaction** generate an error, all the changes must be undone so that the DB is in a consistent state.

What to do

You have to make a Java application according to these requirements and allow the user to perform, in a friendly way, the operations specified on it.

IMPORTANT NOTES:

• For operations to be executed correctly they must meet the requirements of the statement and control all possible exceptions. Although control of exceptions can be done at the data level (in the database schema) or at the implementation level (in the program itself), it is recommended that it be done at the data level.
• The system has to follow, obligatorily, the architecture in three layers: application, persistence and data
• The code must be correctly commented according to the Javadoc standard. The documentation of the code generated automatically by the IDE must be provided.
• The scripts for creating tables and inserting data are those provided to perform practices 2,3 and 4. Almost all the functionality of the project has already been carried out in one of these practices.