Sistemas de Informação e Bases de Dados
Assignment 3 - Using the Database

October 2019

1 A Web Application Using the Database

Using PHP and HTML, develop a simple Web-based application leveraging the database created and populated in Part 2 to perform the following tasks:

- A client comes to the hospital asking for a consult. The first task is to check if the client (e.g., given his VAT) and the animal (e.g., given the name for the animal and the name for the owner) already exist in the database. You should therefore create Web pages to support these checks and the search for matching animals: given a VAT for a client, a (portion of a) name for the owner of the animal, and the name for the animal, you should display the records of all matching animals (i.e., animals matching the name, where the owner matches the provided (portion of a) name, and where previous consults perhaps involved the VAT for the client). On the displayed result, include the possibility of registering a new animal, assuming that the owner is the client bringing the animal to the hospital, if no matching records are found.

- Create a set of Web pages to support the access and registry of information associated to a consult. Selecting (or clicking on) an animal in the results page of the interaction above should lead to another page listing all previous consults for that animal. Selecting (or clicking on) a consult from this list should lead to a page presenting all information on the consult, including the characteristics of the animal (e.g., gender, age, weight, etc.), the SOAP notes, existing diagnostic codes, and any existing prescriptions. There should also be an option for adding information for a new consult, including the VAT for the veterinary doctor, the animal's weight, SOAP notes, and diagnostic codes.

- Create a set of Web pages to support the registry of information associated to a procedure of the type *blood test*. The list of consults for a given animal, from the previous step, should include the option of entering the results for a test associated to the consult. Selecting this option should lead to a page with a form for inserting the results for the test, including the VAT

of the assistant and also the values associated to indicators such as the white blood cell count, number of neutrophils, number of lymphocytes, and number of monocytes (i.e., you can consider a fixed set of indicators). Keep in mind that the insertion of the data related to a test should be made in the context of a single transaction.

You don not need to code all the functionalities of a full application, only the ones asked above. If some other operation is needed (e.g., inserting new clients or inserting veterinary doctors), you can perform it manually through the MySQL command line prompt.

Consider using simple HTML forms and tables to illustrate the results, avoiding complex Web design choices. Whenever appropriate, use prepared statements in the PHP code, thus increasing performance and/or avoiding security problems with SQL injection.

2 Functions, Triggers and Stored Procedures

Provide the SQL instructions corresponding to each of the aforementioned tasks:

- Write a trigger to update the age of the animal according to the birth date and the current date. The trigger should fire whenever a new consult for the animal is inserted into the database.
- Write triggers to ensure that an individual that is a veterinary doctor cannot simultaneously be an assistant in the hospital.
- Write triggers to ensure that different individuals cannot have the same phone number.
- Write a function to compute to total number of consults for a given animal, within a given year (both provided as parameters).
- Write a stored procedure for changing the reference values associated to all indicators that are measured in *milligrams*. For all these indicators, the reporting units should be changed from *milligrams* to *centigrams*, and the reference values (as well as the measured values for all procedures considering this indicator) should be changed by dividing them by 10.

3 Submission Notes

A report for the 3rd assignment should be submitted to Fénix as a single PDF file, readable with a standard program such as Adobe Reader. The report should have one separate section for each of the aforementioned tasks.

Please include the PHP/HTML code together with a screenshot of each Web page. Include also the URL for a working version of the web application (i.e., **use the sigma cluster from IST to deploy the web application**, as shown

on the lab classes, and provide the corresponding URL in your report), together with brief instructions for how it should be used.

The document cover page should mention the names, student numbers, and group number of its authors. Provide notes explaining the rationale behind non-trivial implementation decisions.