Project Assignment (Part II)

The following relational model is a database schema for a health care centre ***inspired*** in what you modelled in Part I of the project:

Patient (number, name, birthday, address)

Doctor(number, doctor_id)
number: FK(Patient)

Device(serialnum, manufacturer, model)

Sensor (snum, manuf, units)
snum, manuf: FK (Device)

Reading (snum, manuf, datetime, value)
snum, manuf: FK (Sensor)

Period(start , end)

Wears (start, end, patient, snum, manuf)
start, end: FK (Period)
patient: FK (Patient)
snum, manuf: FK (Device)

Request(number, patient_id, doctor_id, date)
patient_id: FK(Patient(
doctor_id,: FK(Doctor)

Study(request_number, description, date, doctor_id, manufacturer, serial_number)
request_number: FK(Request)
doctor_id: FK(Doctor)
manufacturer, serial_number: FK(Device)

Series(series_id, name, base_url, request_number, description)
request_number, description: FK(Study)

Element(series_id, elem_index)
series_id: FK(Series)

Region(series_id, elem_index, x1, y1, x2, y2)
series_id, elem_index: FK(Element)

In Part II of the project, your mission is to create a database with this schema and to implement some relevant queries for the health care centre.

Expected Results

In this assignment, you are expected to provide the following results:

1. For the relational model above, write the SQL instructions to create the database in our database server (i.e. MySQL on db.ist.utl.pt). You should choose the most appropriate SQL data types for each column.
2. Write an SQL script to populate the tables with meaningful records of your choice that you will invent to ensure that we can validate the answers to the next questions.
3. Write a query to retrieve the name(s) of the patient(s) with the highest number of readings of units of "LDL cholesterol in mg/dL" above 200 in the past 90 days.
4. Write a query to retrieve the name(s) of the patient(s) who have been subject of studies with all devices of manufacturer "Medtronic" in the past calendar year.
5. Write triggers to: i) ensure that a doctor who prescribes an exam may not perform that same exam ii) prevent someone from trying to associate a device to a patient in overlapping periods. Additionally, fire an error message with text "Overlapping Periods" when this event occurs.
6. Write a function, *region_overlaps_element(),* that, given the (series_id, index) of an Element A, and the coordinates (x1, y1, x2, y2) of a Region B, returns true if any region of the element A overlaps with Region B, and false otherwise.

Submission Notes

The deadline for submission is Wednesday, November 8, 2017, until 23:59 (Fénix time). You should submit it sometime before to prevent any hiccups.

The project report should be submitted to Fénix as a single PDF file. Please check that the file is readable with a standard program, such as Adobe Reader.

The document cover page should mention the names, student numbers, and group number of its authors.

The report should have one separate section for each of the expected results described above.