

CS 5513 - Spring 2018- Homework 2

Assigned: 3/13/2018

Due: 3/29/2018 by 3:00 PM to the class website (soft copy) and in class (hard copy)

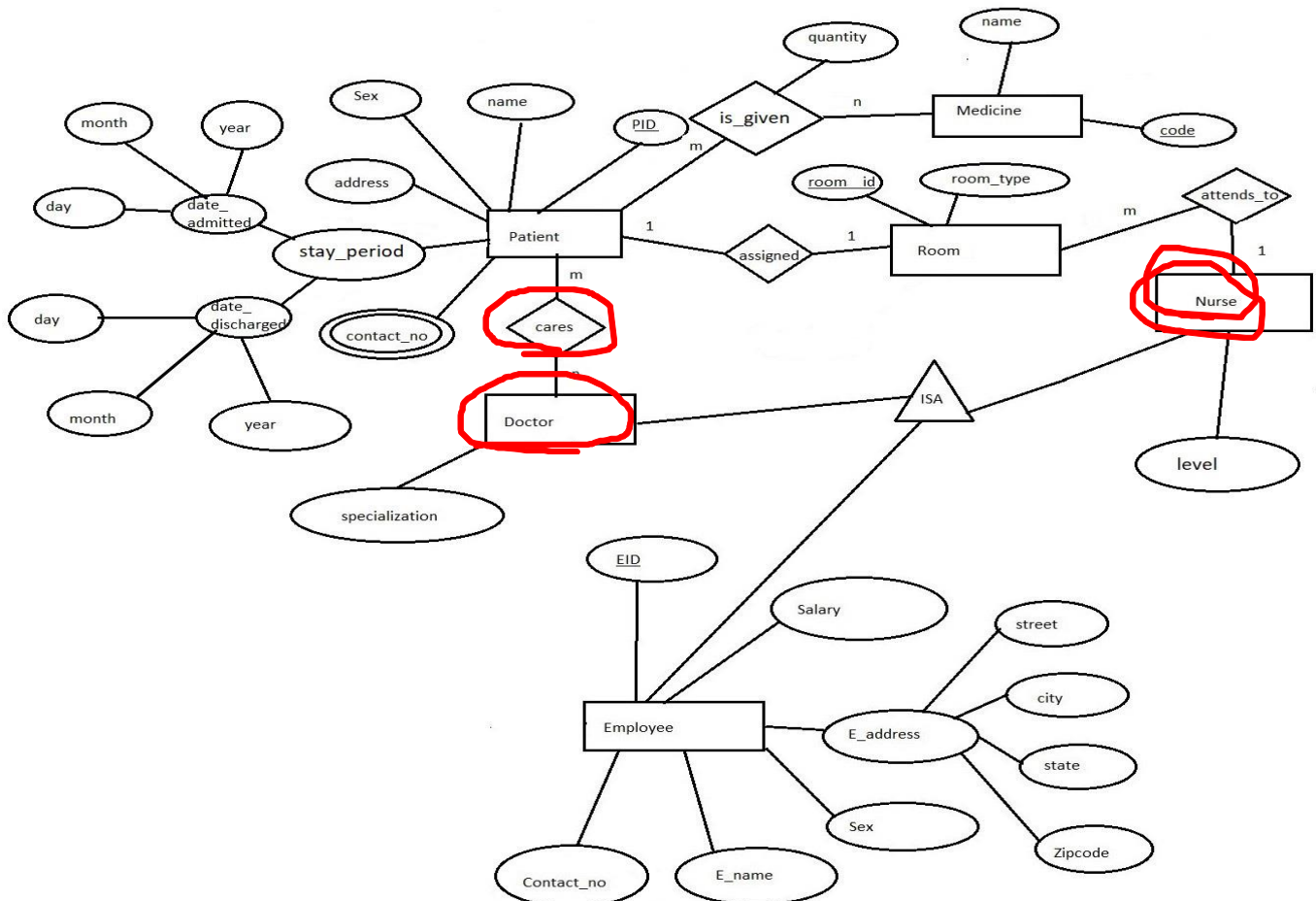
Maximum Points: 75 points

Notes:

- Homework answers must be typed and submitted by 3:00 PM to the class website (soft copy) and in class (hard copy); do not put your work under my/TA's door or in my/TA's physical/email mailbox; otherwise it will not be graded.
- Homework is individual work; it must be done by you only, no collaboration with anyone else is allowed.
- Late homework will be accepted until 11:59 PM on the date following the due date with 5% (of the maximum points) penalty. For late homework, the soft copy must be submitted to the class website by 11:59 PM on the date following the due date (i.e. 3/30/2018) and will be used for grading, and the hard copy must be submitted in the next class following the due date (i.e. 4/3/2018). Late homework that does not meet these requirements will not be graded.

Given the following ER diagram and queries for a hospital database application, implement and test the application according to the instructions given in the "Required Implementation and Testing" section.

ER Diagram:



Queries:

- 1) Insert the complete information for a patient.
- 2) Insert the complete information for a nurse.
- 3) Insert the complete information for a doctor and associate him/her with a patient.
- 4) Insert the complete information for a room and associate it with a patient and a nurse.
- 5) Insert the complete information for a medicine and associate it with a patient.
- 6) Find the complete information for all the patients who were in the hospital during a particular month of a particular year (e.g. during July of 2017).
- 7) Find the complete information for all the doctors who care for more than two patients.
- 8) Find the complete information for all the nurses who tend to patients that are given a certain medicine (e.g. medicine code: 123).
- 9) Delete all the patients who were discharged before a particular year.
- 10) Delete all the patients who have not been assigned a room.

Required Implementation and Testing:

- Using the above ER diagram and queries for a computer store database application, implement this application as a Web object-relational database application that uses JSP, JDBC and Oracle 12c Object-Relational database system to do the following:
 - Create a login Web page for Oracle users to enter their Oracle username and password in order to access your Web object-relational database application.
 - Create a menu Web page that lists all the queries (1-10). For each query Web page, create a link or button to go back to the menu Web page.
 - Implement the queries (1-10). You must make use of the object-relational features of Oracle 12c whenever possible. If you implement this problem as a pure relational database application, you will NOT get more than 30 points (which is 40% of the maximum 75 points) for this homework assignment.
- Use your own dataset to populate the tables.
- The result of each of the queries (1-10) must be displayed on the Web after the query execution.
- Test your program as follows: queries (1-5): run at least 5 times for each query with different parameter values each time; queries (6-8): run at least 2 times for each query with different parameter values each time; and queries (9-10): run at least 2 times for each query with different parameter values each time.
- Submit a hard copy and soft copy of all your files and results.
- Turn in the hard copy and soft copy of
 - Your SQL file(s) showing the creation of object types and tables,
 - Your SQL file(s) to populate the database (if any),
 - Your Java and JSP files and the query results (the snapshots of output on the Web).
- Keep a soft copy of all your files and results in your directory. To check if your program works correctly, we will have an online demonstration. The exact time and date for the online demonstration will be announced later. You MUST NOT modify your files or results after you turned them in. You will get a zero grade for this homework assignment if you violated this rule.

Important notes:

- All of your files must be well documented. Your work will be graded based on correctness as well as documentation.
- Before working on this homework assignment, you should have understood the examples of Object-Relational database applications and the examples of Web database applications (including Lecture Topic 6–Web Databases–Parts 1, 2 and 3) on the course website and review the references

listed below.

1. **VPN Instructions to connect to Oracle SQL Developer 17.4** (available on the course website)
2. **How to Access Oracle 12c** (available on the course website)
3. **Oracle 12c Database Object-Relational Developer's Guide** (also available on the course website): <http://docs.oracle.com/database/121/ADOBJ/E53277-02.pdf>
4. **Oracle® Database 2 Day + Java Developer's Guide12c Release 1** (also available on the course website): <http://docs.oracle.com/database/121/TDPJD/E17944-10.pdf>