CS434 – Data Base Theory and Design

Project #2

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Points: This assignment is worth 20 points.

Team Database Application (TDA): Part 2 - Relational Database Design

Description

1. *(2 points)* **Please attach a copy of your E/R schema from the first deliverable to your submission of this assignment**. If you have modified your design because of feedback (or any other reason), please hand in the modified design instead; the new design will not be graded but will be compared with your relational design.

2. *(13 points)* Use the method for translating an E/R diagram to relations described in class and the text to **produce a set of relations from your E/R design**. Specify your relational schema using the notation of Section 2.2.7 (but omit data types at this point). Please be sure to **underline key attributes** and **explicitly specify all other integrity constraints** that hold on your relations. **State ALL functional dependencies that hold on your relations, even if the only FDs describe unique value or key constraints**. **Indicate the DATA TYPES for all attributes**. Be sure to use types available in the DBMS you are planning to use for the project.

3. *(5 points)* Are there any flaws in the relational database schema you get from part 2? Are there opportunities to combine relations without introducing redundancy? **If so, indicate which, and if not, tell us there are none**. Are there examples of non-BCNF relation schemas? If so, do you want to decompose them? **For each opportunity to combine or decompose relations (i.e., each non-BCNF relation), decide whether or not to do so, and explain your reasoning briefly** (e.g., tell us what queries you expect will be typical for your database, and tell how the design you pick facilitates them). Is there anything you still don't like about the schema (e.g., attribute names, relation structure, duplicated information, etc.)? **If so, modify the relational schema to something you prefer**. You will be working with this schema quite a bit, so it's worth spending some time to make sure you're happy with it

4. *(0 points)* Login to the DBMS you plan to use. Try some simple commands, such as table (relation) creation, insertions and deletions.

Don't forget to **save a copy** of your TDA for reference as you complete the next deliverable of the TDA.

Deliverables

For the TDA part of this assignment, you need to hand in your **relational schema** with all the annotations described above. You must also attach a copy of your **ER diagram**, it is OK if this has changed since the previous project. Be sure your relational schema description includes **constraints, data types, and FDs,** as stated above. You only need to hand in one deliverable per team but make sure you write the **names and email addresses** of all teams members on the assignment.

Don't forget to **save a copy of your design** for reference as you are getting ready to complete the next deliverable for the TDA