

Homework 1 for CSC 742: Database Management

Collaborative Work

You may form teams of 1 - 4 members (of students in this class) to cooperate on this problem set. After discussing the problem, please write up your answers individually. Indicate the names of the other members in your team, if any.

1 Sybase and JDBC (30 points)

Run the on-line examples of using the Sybase DBMS in the following ways after creating the requisite tables. The information about loading the database can be accessed at the following link.

http://courses.ncsu.edu/csc742/lec/001/sybase-info/loading_db.html

1.1 isql

Show the content of all the tables. Submit your queries and the corresponding output.

1.2 wisql

Show the content of all the tables. Submit your queries and the corresponding output. (It should be the same as 1.1.)

1.3 JDBC examples

The JDBC examples can be accessed at the following link.

<http://courses.ncsu.edu/csc742/lec/001/sybase-info/jdbc.html>

Submit the output of SKRSample.

Independent Work

You must solve this problem set individually without any assistance from anyone. Mastery of the predicate calculus, and the ability to convert from English to the predicate calculus, is essential for success in this course.

2 Formalization: Background (30 points)

Write predicate logic (equivalently, predicate calculus or first-order logic) expressions for the following English statements. You may use the following predicates:

- student
- course
- takes
- lives-in
- gpa
- support

You get 10 points for each problem you solve correctly. There will be no partial credit. The first problem is solved as an example.

2.1. Every student who takes at most one course lives in Raleigh.

$$(\forall s : (\text{student}(s) \wedge (\forall c_1, c_2 : (\text{course}(c_1) \wedge \text{course}(c_2) \wedge \text{takes}(s, c_1) \wedge \text{takes}(s, c_2)) \rightarrow c_1 = c_2)) \rightarrow \text{lives-in}(s, \text{Raleigh})))$$

2.2. Only students who take at most one course live in Raleigh.

2.3. Only students who take exactly one course live in Raleigh.

2.4. All students who have the same GPA get the same amount of financial support.