Database Systems, Fall 2006 IT University of Copenhagen

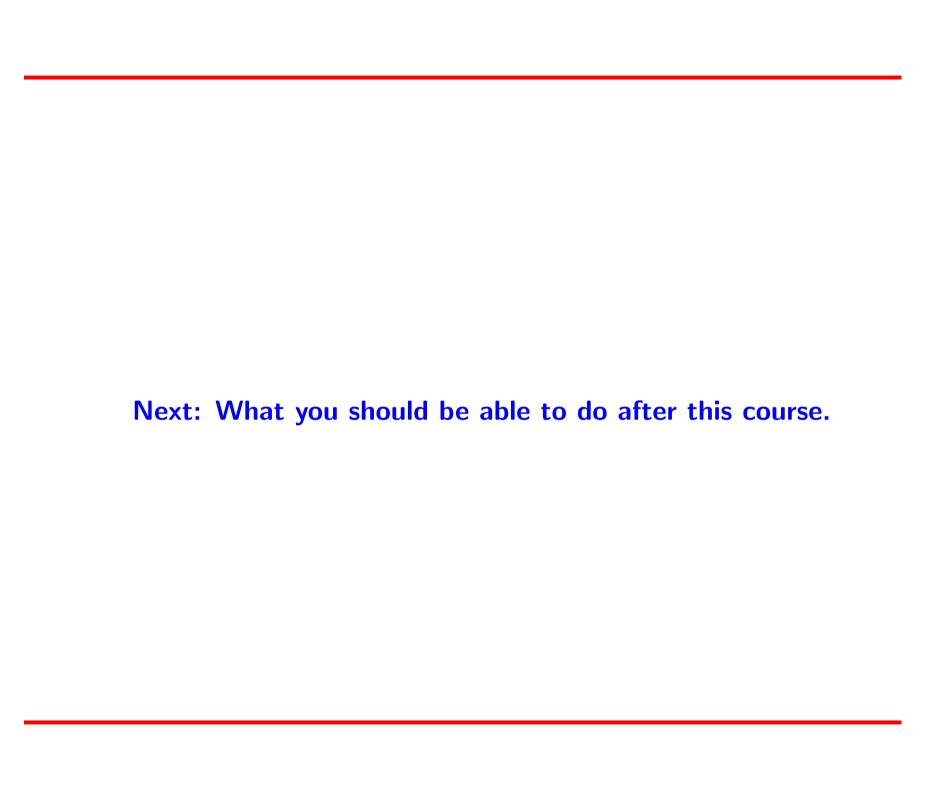
Lecture 12, part 2: Exam preparation

December 5, 2006

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— Today's lecture, part II-

- What you should be able to do after this course.
- Suggestions on how to study for the exam.
- Facts about the exam.
- Example exam paper, and how it is corrected.



— Desired effects of your study in databases —

Concrete effects:

You are able to carry out certain **tasks** related to relational databases:

- Design using E/R modeling
- Database programming in SQL
- Analyze the possible behavior of transactions, create indexes, etc.

Less concrete (but not less important):

- You have improved your ability to make ideas and concepts precise.
- You have improved your ability of abstract thinking.

— Tasks in database design

Some basic tasks in database design:

- ullet Given a description in words of a data set, draw a corresponding E/R diagram.
- \bullet Given an E/R diagram, perform the conversion into relations.
- Add to an E/R diagram certain multiplicity or referential integrity constraints.
- Add key constraints or referential integrity constraints to an SQL database schema.
- Given a relation instance what are the possible keys?
- Find functional or multivalued dependencies in a relation schema.
- Decompose a relation into BCNF or 3NF.
- "Add time" to a database design (temporal database).

— Tasks in database programming

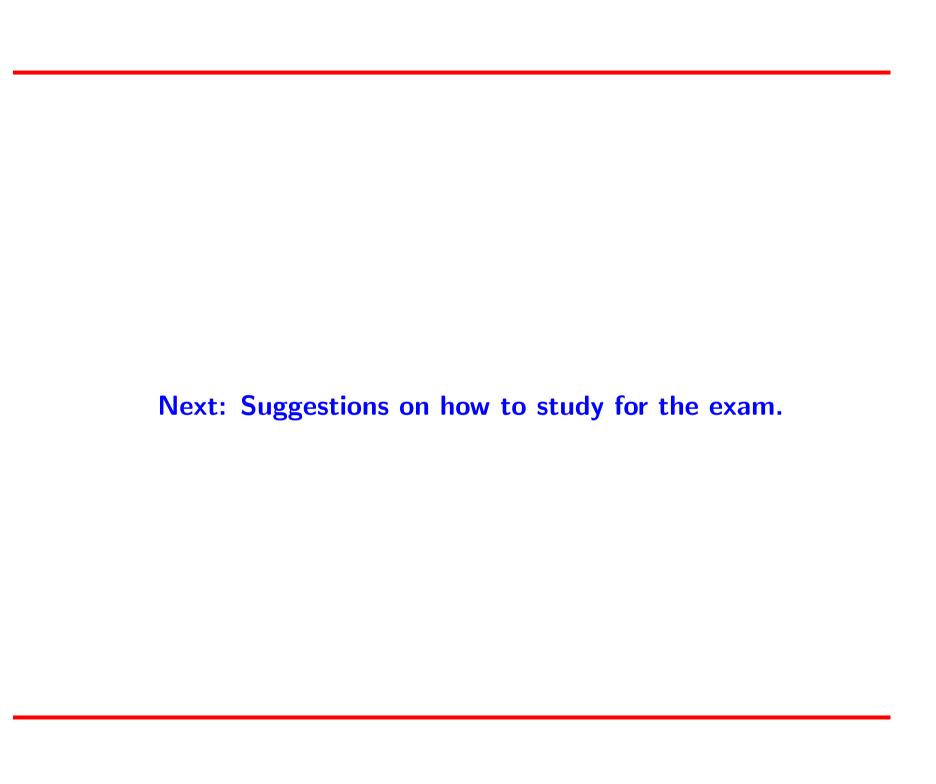
Some basic tasks in database programming:

- Given an SQL statement, explain in words what it does.
- Given a database schema and a query described in words, write the query in SQL.
- Explain the difference between two SQL queries.
- Rewrite an SQL query such that it does not use some specific feature of SQL (e.g., with no subquery).
- Given a sequence of GRANT and REVOKE statements, state the privileges of each user.
- Write SQL to grant a user the right to access certain information.

— Other kinds of tasks

Some basic tasks in other areas:

- Given a data warehouse design, write the corresponding star schema.
- Given the description of a transaction, state what SQL isolation level would be appropriate for it.
- Given the description of two transactions, state what undesired event could happen if they were run at isolation level READ COMMITTED.
- Given some SQL query, state what kind of index could be used to speed it up.
- Given a collection of queries, suggest suitable indexes.



— The exam curriculum -

The curriculum (found on the my.itu portal) consists of:

- All parts of RG and supplementary material written on the course schedule.
- Regular lecture slides (not guest lectures).
- The example runs corresponding to the lecture slides.

— Focus your effort using the lecture slides -

The lecture slides focus on:

- The most important aspects of the course material, and
- The most difficult aspects of the course material.

In other words, you should spend most of your preparation time on getting a full understanding of the material on the slides (the book and supplementary material will be needed for this).

Things on the lecture slides you should *not* focus on:

• Information specific to Oracle: This was included for the sake of the exercises and will not be tested at the exam.

— How to use the examples -

The book contains many examples. It is a good idea to read an example:

- If you remember things better when they are made concrete.
- If you are not quite sure that you have properly understood the material it exemplifies.

But: The exam will not require knowledge of any particular example.

• You can safely skip an example if you have understood the material it exemplifies.

— How to ask questions? -

What to do if you encounter a question related to the course:

- 1. Write it down.
- 2. Discuss it with your study group (it is recommended to find someone to study for the exam with).
- 3. If still in doubt, you may ask your question on the news group it-c.courses.DBS.
- 4. There will be no physical "Q&A session" this year.

Next: Facts about the exam.

— Exam format

- Written exam, 4 hours, January 2, 9.00-13.00, room 3A12+3A14
- "Open book" with all written aids allowed. You should bring:
 - The course curriculum.
 - Your notes.
 - Your answers to exercises and hand-ins.
- You may not bring a computer, but you may use a calculator (not vital).
- Remember to bring your study card (i.e., ITU key card).
- It is OK to write in Danish and use English technical terms.

— How the grading is done-

- A problem marked with X% is worth X points.
- The maximum possible score is thus 100 points.
- The questions in a problem are worth roughly the same amount of points, depending on the "size" of the question.
- The passed/not passed boundary is 50 points.
- To get an average grade (8) you should get around 70 points.
- To get a top grade (10–13) you must get more than 80 points.

— Explain the non-obvious, state your assumptions

Any full, correct answer will receive maximum points. However, it is a good idea to add some explanation to show your understanding:

- It can make it clearer that the answer is correct.
- If there is some error in the answer, the explanation might show that this is not due to lack of understanding.

If the question explicitly asks for explanation/argument, you **must** provide it (in particular for yes/no answers), or you may lose all points!

If you need to make any assumptions to answer the question, you should state them explicitly.

— Order, please! -

- Start the answer to every problem on a new sheet.
- Do not write on the back of the sheet.
- Number the sheets in an order consistent with that of the problems.