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.

Next: What you should be able to do after this course.

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:

- Given a description in words of a data set, draw a corresponding E/R diagram.

- 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.

Next: Suggestions on how to study for the exam.

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.