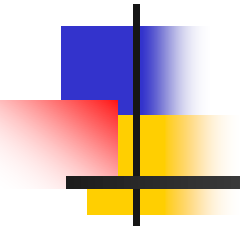

COMP1140: Database and Information Management

Lecture Note – Week 12

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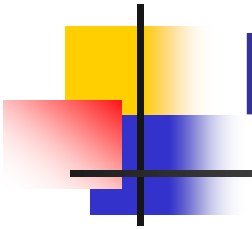
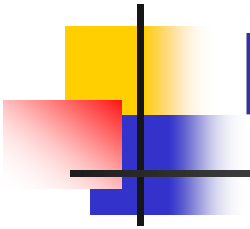


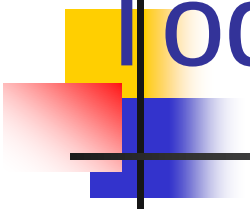
Note

- Assignment 3 is due this week
  - Deliver hard copy to your lab tutor at the beginning of lab
  - Make sure you set up your DB on lab PC when lab starts
  - You are required to attend your lab session, the SQL part of the A3 will be marked on site – no show, no mark
  - Read the assignment specifications & the marking guide; make sure to implement normalised tables; meet constraints etc.
- Lab arrangement this week
  - A3 SQL marking + JDBC practice
- No lecture no lab next week (week 13)
- Q & discussion



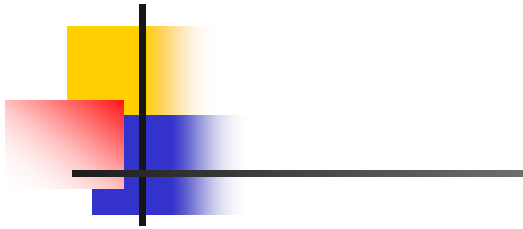
Last Lecture

- Discretionary Access Control
  - Schema
  - Privileges
  - Users and Roles
  - GRANT, DENY and REVOKE
- Physical Database Design
  - Data Storage: Overview
  - Indexes: Overview
  - Query Execution Plans: Overview



Today:

- JDBC
- Review for Final Exam
  - Exam arrangement
  - Exam structure
  - Course review



JDBC

- See another ppt

Exam arrangement

- Date: Nov 21, Wednesday,6pm (You need double check)
- Weight: accounts for 50% of the whole course

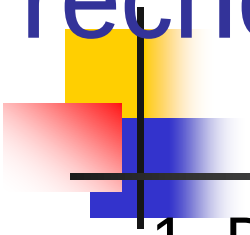
Exam structure

- Restricted Open Book examination
- 1 A4 double sided sheet of notes (Memory Aid sheet) is permitted
- Duration: 2 hours + 10 minutes
- There are 11 Qs, total 100 marks
  - Short answering
  - Problem solving

Final Exam – Areas to Study

- Read the lecture notes and textbook well, also review lab/tutorial exercise, assignment.
- All questions are derived from the text book and the lecture notes and lab practice, so be prepared.
- It covers the contents dealt with from week 1 to week 12.

Course Learning Outcomes recheck:



- 1. Design conceptual models encapsulating data requirements for business and organisational scenarios
- 2. Convert conceptual models to logical data models
- 3. Implement a database solution using contemporary database management systems (DBMS)
- 4. Develop expertise in database languages (e.g. SQL) including the ability to develop sophisticated queries to extract information from large datasets
- 5. Understand data security and data quality management

Content involved

- L1: Introduction to Course, DBMSs
- L2: Project Requirements
- L3: Conceptual DB Design with Entity-Relationship Diagrams
- L4: Logical DB Design, EER/ Relational Mapping
- L5: Normalisation
- L6: Relational Algebra
- L7: SQL (DDL + DML)
- L8: Advanced SQL – join, subquery, set operation
- L9: SQL Test
- L10: Views, Transactions, Triggers and Stored Procedures
- L11: Data Access: Users, Roles, Privileges, Physical DB Design: Data Storage, Indexes, Query Execution Plans
- L12: Review + JDBC

Areas that may be worth paying special attention to:

- L1: Introduction to Course, DBMSs
  - Concepts of DBMSs
  - Definitions & concepts of database design processes: Requirements Analysis, Conceptual Database Design, Logical Database Design, Physical Database Design

Areas that may be worth paying special attention to:

- L2:
- Database and DBMS architectures
  - **Three-level database architecture**
  - **Multi-User DBMS Architectures**
- Project Requirements
  - Understand the way to gain requirements

Areas that may be worth paying special attention to:

- L3: Conceptual DB Design with Entity-Relationship Diagrams
  - Know how to build EER based on requirements
  - Review lab & assignment content as examples

Areas that may be worth paying special attention to:

- L4: Logical DB Design, EER/ Relational Mapping
  - Understand concepts in relation model:
    - Relation, relation database, constrains
  - Know how to map EER to Relation using Database Definition Language (DBDL) notation
    - Pay attention to various cases of EER model (e.g., n:n, sup/sub)
    - Review examples in labs & assignments

Areas that may be worth paying special attention to:

- L5: Normalisation
  - Understand concepts in normalisation
  - Considerations when decomposing relations
  - Functional Dependency
  - Normal forms, definitions, procedures

Areas that may be worth paying special attention to:

- L6: Relational Algebra
  - Understand basic operations in relational algebra
  - Understand other operations that can be formed with basic ones (e.g., Join)
  - Query in RA

Areas that may be worth paying special attention to:

- L7: SQL (DDL + DML)
  - Understand various SQL commands
  - Know how to implement in application
  - Review practical exercise in labs & assignments

Areas that may be worth paying special attention to:

- L8: Advanced SQL – join, subquery, set operation
  - Know these concepts
  - Can use these in application
  - Review practical exercise in labs & assignments

Areas that may be worth paying special attention to:

- L9: SQL Test

Areas that may be worth paying special attention to:

- L10:
- Views, Transactions and Triggers
  - Understand basic concepts
  - Know how to use scripts properly
  - Pay attention to lab exercises

Areas that may be worth paying special attention to:

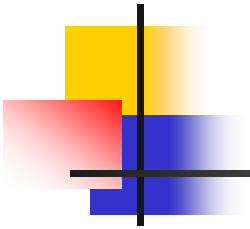
- L11 partA: Data Access: Users, Roles, Privileges
  - Understand basic concepts including:
    - Schema
    - Privileges
    - Users and Roles
    - GRANT, DENY and REVOKE
  - Understand practical issues dealt with in lab

Areas that may be worth paying special attention to:

- L11partB: Physical DB Design: Data Storage, Indexes, Query Execution Plans
  - Understand basic concepts & definitions

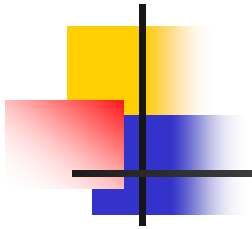
Areas that may be worth paying special attention to: summary

- Be useful to link all the processes for the 3 assignments of a database system, all the steps involved
  - create EER,
  - mapping EER to Relations,
  - relational algebra as theory support of,
  - queries in relational algebra,
  - necessary normalization based on specified function dependency etc,
  - SQL DDL & DML,
  - query, view, transaction, trigger,
  - database access
  - Considerations in physical implementation



More on final exam

Qs?



Study hard & Good luck!