Faculty of Computer Science and Engineering
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Database Systems Lab - CO3014

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LECTURERS

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ACTIVITIES

Session	Week	Content	Note
1	1 (W36 or W37)	ERD & EERD	Team registration
2	1	ERD Mapping	Assignment 1 release
3	2	Relational Algebra	
4	2	SQL (Part 1)	
5	3	SQL (Part 2)	1) Submission of Assignment 1 (The end of the working day via Bkel or GG Drive) 2) Evaluation based on report 3) Assignment 2 starts
6	3	View-Trigger-Procedure (Part 1)	
7	4	View-Trigger-Procedure (Part 2)	
8	4	Functional Dependency	Submission of Assignment 2 (The end of the working day via Bkel or GG Drive)
9	5	Assignment Presentation + Review	12 minutes + 12 minutes Q&A
10	5	Assignment Presentation (continue) + Review	12 minutes + 12 minutes Q&A

ASSESSMENTS

- Assign 1: 15%
- Assign 2: 15%
- Presentations: 2 mandatory (10% each)
- Midterm exam: No
- Final exam: 50%:
  - 90', test (multiple choices) & exercises
  - Content: to be revised in the last week of teaching
  - Bonus: added to each score column in order
  - **- 1** points for the 1st 2 absence, **-1** more point for each additional one

TEAM WORK

- W1: Make group of 3 students
- Discuss about the topic in:
  - Human resource management system
  - Course and training management system
  - An online test (multiple choice questions) management system
  - Hospital management system
  - Retail management system
  - Online shop management system
  - Library management system
  - Traffic management system
  - …. You can propose your favorite system….
- W2: Decide the topic for each group

MAIN TASKS

- ***Assignment* #1**
  - Make the requirement description for the DB system
  - Conceptual design
  - Investigate/study a DB design tool to design the DB system
  - Logical design using relational DB model
  - Discus the selection of DBMS for implementation of the DB system (both relational and NoSQL could be fine)
  - Implement the DBs into a particular DBMS

MAIN TASKS

- *Assignment #2*
  - Complete the DB system design with acceptable normalization form. Discus about this aspect.
  - Complete the implementation of the DB system on a particular DBMS
  - Develop an application on top of the designed DB system
  - Discus the DB system security and propose ideas/solutions to improve the security issues

EVALUATION

- Assignment 1:
  - 1 points: Good and detailed requirement description
  - 2 points: Appropriate conceptual DB design
  - 1 point: Using tool for conceptual design
  - 2 points: Appropriate logical DB design
  - 1 points: Discus the DBMS that you will use for implement the DB system
  - 1 points: Physical design of your DB system based on the DBMS you selected
  - 2 points: Successfully implement the DB into an particular DBMS

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EVALUATION

- Assignment 2:
  - 2 points: Complete implementation of the DB to DBMS
  - 2 points: Discus about the normal form (NF) and solutions for improving the NF
  - 2 points: Discus the DB security and solutions
  - 3 points: Using tools for tuning and manipulating the DB you have implemented with:
    - ✓ (1pt) query (from simple to complex ones)
    - ✓ (1pt) trigger, stored procedures
    - ✓ (1pt) indexing
  - 1 point: Develop an application on top of the designed DB system
    - ✓ (0.5) With input forms
    - ✓ (0.5) With search and regular reports including summarized report

REFERENCE

Core Textbook

[1] R. Elmasri & S.B. Navathe (2016): *Fundamentals of Database Systems*, 7th Edition, Addison-Wesley, ISBN-13: 978-0-13-397077-7

Other references

[2] Database Systems Using Oracle – A Simplified Guide to SQL and PL/SQL, 2nd Edition - N. Shah, Prentice Hall, 2005.

[3] Database Systems – A Practical Approach to Design, Implementation, and Management, 4th Edition – T. Connolly & C. Begg, Addison-Wesley, 2005.

[4] J. Hurwitz, A. Nugent, F. Halper, M. Kaufman "Big Data for Dummies", John Wiley & Son Inc., 2013, ISBN: 978-1-118-64401-0

[5] Research papers related to database systems, big data, IS,… published by ACM, IEEE, Elsevier, Springer

[6] Internet

Q&A

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