IT3090E Database

HomePage

Class Information

Class: DS-AI (141176)
Time: 12:30-14:50, Tuesday
Location: GĐ-B1

Instructor: Vũ Tuyết Trinh
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Description

This course provides students with concepts related to database, database systems and its principles; data models with a focus on relational data model, database query languages; practical skills in using relational database management systems; database design methods; database technologies such as storage organization, indexing, query optimization and data integrity.
The course also provides teamwork, problem-solving and practice skills through group discussion and presentation (during the class) and experimentation works.

Grading

- Progress (50%)
  - Practical work: 15%
  - Test: 35% (4 test)
- Final exam: 50%

Text and Reading

1. Raghu Ramakrishnan, Johannes Gehrke. Database Management Systems (3rd edition). 2003. McGraw-Hill
2. C. J. Date. An introduction to database systems (8th edition). 2004. Pearson/Addison-Wesley
3. Hector Garcia-Molina, Jeffrey D. Ullman, Jennifer Widom. Database systems : the complete book (2nd edition). 2008. Prentice Hall
4. R. Elmasri and S. Navathe. Fundamentals of Database Systems. 2004 (4th edition). Addison-Wesley.
5. Nguyễn Kim Anh. Nguyên lý của các hệ cơ sở dữ liệu. 2004. Nhà xuất bản Đại học Quốc Gia Hà Nội.

Useful website/resources

- Online courses by Jennifer Widom (Stanford University) at https://www.edx.org
  - Databases: Relational Databases and SQL
  - Databases: Modeling and Theory
  - Databases: Advanced Topics in SQL
- others will be provided during the class.

Tentative Plan

Week	Topics	Materials
21/3	Introduction to Database Relational DB	slides1_Introduction.pdf
28/3	Relational Database Language SQL	slides2_SQL(part1).pdf slides3_SQL(part2).pdf
4/4	Discuss on SQL part and exercises	
11/4	Relational Algebraic	slides4_algebra.pdf
18/4	Exercices	
25/4	**Test 1** Conceptual Design with ER Model	slides5_ER-class.pdf
2/5	**NO CLASS (30/4 – 1/5 Holiday)**	
9/5	Database Design: bottom-up approach Functional Dependency	slides6_Functional_Dependency.pdf
16/5	**Semester break**	
23/5	Normal Forms & Normalization Exercices	slides6_Normalization.pdf
30/5	**Test 2**	
6/6	Index Management	slides7_Storage.pdf
13/6	**No class**	
20/6➔ 23/6 (online)	Query Processing (relational algebra)	slides8_QueryProcessing.pdf
	Contraints & triggers Security	slides9_Constraints_Triggers.pdf
27/6	Exercises	
TBD	**Test 3**	
4/7	Transaction	
11/7	**Test 4** Review	
18/7	Advanced topics, Recent Trends	
	FINAL EXAM	