178370 Database Systems 1/2549

Objectives

This course presents an overview of the "state of practice" in modern database systems. Three aspects of database management will be examined. First, we will look at the basic structure and capabilities of a database system. Second, we will examine the process of designing a database and using a database system. Finally, we will look at some latest trends in database systems and implement programs in these trends which include network programming and XML and database mapping.

Prerequisites

Students are expected to have a background in basic data structures and be able to write programs in C/C++ or Java. Students are expected to learn and do a significant amount of work.

Outcomes

On completion of the course, students should be able to

1. Understand the basic structure and capabilities of a database system
2. Design a database and know how to use SQL commands to query data
3. Write programs to connect to the database and to automatically import XML data into relational database and export relational data to XML data.

Recommended Textbooks and Web Pages

- *Database Management Systems*, by Raghu Ramakrishnan and Johannes Gehrke, McGraw Hill, 2003 http://www.cs.wisc.edu/~dbbook/
- *A First Course in Database systems*, by Jeff Ullman, and Jennifer Widom http://www-db.stanford.edu/~ullman/fcdb.html
- *Database Systems: The Complete Book* (DS:CB), by Hector Garcia-Molina, Jeff Ullman, and Jennifer Widom. http://www-db.stanford.edu/~ullman/dscb.html
- Course 178370, E-learning Faculty of Engineering, KKU http://e-learning.en.kku.ac.th/course/view.php?id=219

Evaluation and Grading

Practice Quizzes	**15%**
Labs Attendance	**10%**
Lectures Attendance	**5%**
Exercises	**5%**
Midterm Exam	**15%**
Mini Project	**30%**
Final Exam	**20%**
Class Participation	**Extra score up to 5%**

Class Attendance and Participation

- You are strongly encouraged to attend both lectures and labs as well as answer and ask questions in class. The teacher can only guide your learning, but it's you who need to learn

Lecture Topics	# of Hours
1. Introduction to Database Systems	3
2. Introduction to Database Design	3
3. The Relational Model	3
4. Relational Algebra	3
5. SQL: Queries, Programming, Triggers	9
6. Database Application Development	6
7. Internet Applications	9
8. Overview of Storage and Indexing	6
9. Schema Refinement and Normal Forms	3

Lab Topics	# of Hours
1. Fundamentals of Java	6
2. SQL	12
3. JDBC Programming	6
4. XML and Database Programming	6