Fall 2014
ICS321 Data Storage & Retrieval
Tue & Thu 12-1:15 PM

Assoc. Prof. Lipyeow Lim

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Staff

- Instructor: Lipyeow Lim
  - Firstname is fine!
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  - Office Hours TTh 1:30-2:30 pm
- Teaching Assistant:
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Poll

- How many of you have:
    - Taken Discrete Math I (ICS141) at UHM?
    - Programmed in Java in the past 1 year?
    - Programmed in C ?
    - Used unix shell commands ?
    - Used a database before ?
    - Used linux ?
    - Used virtualization technology like Vmware, Xen, KVM, virtualBox ?

Communications

- Webpage:
  - www2.hawaii.edu/~lipyeow/ics321/2014fall/
- Laulima
  - laulima.hawaii.edu
  - Grades of quizzes, homework, exams will be posted there
  - Discussions
- Emails

Textbook

- Required:
  - **Database Systems: The Complete Book (2nd Edition)**.
  - Hector Garcia-Molina, Jeff Ullman, and Jennifer Widom.
  - ISBN-13: 978-0-13-187325-4.
- Alternate:
  - **A First Course in Database Systems (3nd Edition).**
  - Jeff Ullman, and Jennifer Widom
- Previous:
  - **Database Management Systems, Third Edition.**
  - Raghu Ramakrishnan and Johannes Gehrke.

Format

- Class time: Tue & Thu 12-1:15 PM
  - Summary, Q & A
  - Group discussion & problem solving
  - Hands-on Session (TBA) – *Please bring your computer.*
- Quizzes before every class (15%) – *online in laulima*
- "3" Homework assignments (15%)
- One course project (40%) – *group work*
  - Includes a live or recorded 8 minute presentation
  - Peer evaluation
- One mid-term exam (15%)
  - One letter size sheet of notes allowed (2 sided)
- One final Exam (15%)
  - One letter size sheet of notes allowed (2 sided)

Pre-requisites

- Understand set theory (ICS 141 Discrete Math)
- Understand propositional logic (ICS 141 Discrete Math & ICS 111 Intro to CS)
- Be able to write a program in Java (ICS 111+211)
  - Use an editor to edit java code
  - Command shell
  - Compile and run programs
- Have access to a computer (preferably a laptop)
- Have internet access

To do well in this class …

- Read the assigned reading BEFORE class!
- Keep up with the readings
- Attend class and participate
- Review the material for the quizzes, mid-term, and final
- Do the homework assignments
- Start on the project early
- Take charge of the learning process
  - Try out the commands on the DBMS
  - Make use of the exercises in the textbook

Focus on understanding the material to the point that you can apply it in different contexts!

Why take this course ?

- Database-related jobs eg. DBA

- You'll likely deal with data management in your (future) jobs

- Database technology is behind almost all internet technology

- …

Assignment 1: Querying Large Files

- **Input**
  - A CSV data file, eg order.csv
    - 1|3691|O|194029.55|1996-01-02|5-LOW|Clerk#000000951|0|
    - 2|7801|O|60951.63|1996-12-01|1-URGENT|Clerk#000000880|0|
    - 3|12332|F|247296.05|1993-10-14|5-LOW|Clerk#000000955|0|
    - 4|13678|O|53829.87|1995-10-11|5-LOW|Clerk#000000124|0|

  - A list of queries:
    - Load order.csv
    - SearchEq 3 F
    - SearchGtr 4 200000

- **Output:** Prints the rows that matches the queries
- **Constraint:** Data is too big to fit into memory

Homework

- Week 1
  - Setup Java development environment
  - Start working on Assignment 1
- Week 2
  - Install VirtualBox on your laptop
  - Download Ubuntu 14.04 Desktop Edition (64 bits) image to your laptop
  - Create a Virtual Machine and Install Ubuntu on it
  - Download Oracle Express Edition 11g Release 2 to your laptop
  - Install Oracle on the Ubuntu Virtual Machine
- See screencast on the course website for more info.

Picture Roster