

Fall 2013

ICS321 Data Storage & Retrieval

Mon & Wed 12-1:15 PM

Asst. Prof. Lipyeow Lim

Information & Computer Science Department

University of Hawaii at Manoa

Staff

- Instructor: Lipyeow Lim
 - Firstname is fine!
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 - Office Hours MW 1:30-2:30 PM or by appointment
- Teaching Assistant:
 - Dylan Kobayashi dylank@hawaii.edu

Please Introduce Yourself Briefly

- Name
- Year of study (or how long have you been at UH)
- One “distinguishing” fact about yourself to help me learn your name
 - Eg. Hobby, place of origin, job, travels, what you did last summer ...

Poll

- How many of you have:
 - Taken Discrete Math I (ICS141) at UHM?
 - Programmed in Java ?
 - 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/ics321/2012fall/
- 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 (3rd Edition).**
 - Jeff Ullman, and Jennifer Widom
- Previous:
 - **Database Management Systems, Third Edition.**
 - Raghu Ramakrishnan and Johannes Gehrke.

Format

- Class time: Mon & Wed 12-1:15 PM
 - Summary lecture (Mon & Wed)
 - Group discussion & problem solving (Mon)
 - Hands-on Session (TBA) – *Please bring your computer.*
- Quizzes every Monday (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 a text editor
 - 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

- **BEFORE coming to class on Wed**
 - Setup Java development environment
 - Start working on Assignment 1
- **BEFORE next week**
 - Install VirtualBox on your laptop
 - Download Ubuntu 13.04 Desktop Edition image to your laptop
 - Create a Virtual Machine and Install Ubuntu on it
 - Download DB2 Express-C 10.5 to your laptop
 - Install DB2 on the Ubuntu Virtual Machine
- See screencast on the course website for more info.