

Spring 2015

# ICS321 Data Storage & Retrieval

Mon & Wed 9-10:15 AM

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 Assistants:
  - Kendyll Doi ([kendyll@hawaii.edu](mailto:kendyll@hawaii.edu))
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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/ics321/2015spr/](http://www2.hawaii.edu/~lipyeow/ics321/2015spr/)
- Laulima
  - [laulima.hawaii.edu](http://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 9-10:15 AM
  - Summary, Q & A
  - Group discussion & problem solving
  - Hands-on Session (TBA) – *Please bring your computer.*
- Quizzes before every class (15%) – *online in laulima*
- 4-5 Homework assignments (45%)
- One mid-term exam (20%)
  - One letter size sheet of notes allowed (2 sided)
- One final Exam (20%)
  - 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
- 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**
  - IF laptop has less than 4 GB of ram, install natively
  - 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