WELCOME TO CSE 100!

Advanced Data Structures in C++
About me

- Diba Mirza (dimirza@eng.ucsd.edu)
  - PhD (Computer Engineering, UCSD)
  - Second year @ UCSD as teaching faculty
- Office: 2124 EBU3B
- Office hours:
  - Mon: 3pm – 4pm, Fri: 11am to noon
  - Or by appointment
Information about TAs and tutors

TAs:

Peter Spragins
Narendran Thangarajan
Ning Liu
Vidya Kirupanidhi
Vineel Konduru

Tutors:

Zach Grannan
Alvin See
Freddie Haddad
Scott Lin
Xiaoyu Liu
Kyle Barron-Kraus
Avnish Patel
Mingshan Wang
Harvey Lu
Eric Fonseca

Office/lab hours available on the course website

http://cseweb.ucsd.edu/classes/fa14/cse100/
CLICKERS OUT

Set your frequency to BD
Have you been in a class that used peer instruction before?

A. Yes
B. No
C. I’m not sure
Peer instruction groups

Take a minute to introduce yourself to your group members
iClickers: You must bring them

- Buy an iClicker at the Bookstore
- Register it on TED.

Text: Buy or share with a friend, also on reserve

About This Class

You must **attend** class
You must **prepare** for class
You must **participate** in class
Why study data structures?

Discuss with your group
What we will talk about

• Structures for fast storage and retrieval of different types of data (Trees, trees, and more trees! Oh, and Hashtables)
• Structures that rely on randomness for (expected) speed (skip lists)
• Structures to support compact data representation (tries)
• Structures to support topology (graphs)
• Structures that take advantage of memory and disk organization (B-Trees)

All that AND C++ and version control systems!
A lot of data (structures) but what should you take away?

- Ability to choose the correct data structure -> requires understanding data structures from a client perspective:
  - Operations supported
  - Time and space complexity (should be able to analyze)

- Ability to implement some number of non-trivial data structures, correctly, efficiently and elegantly.
  - You may never have to do it (the STL and all…) but if you ever need to, you’ll be glad you have the skill.
  - The ability to write and understand good, clean, well-designed C++ code.
If you only remember one thing today

http://cseweb.ucsd.edu/classes/fa14/cse100/

Read the syllabus. Know what’s required. Know how to get help.
About you…

What is your familiarity/confidence with programming in Java?

A. Know nothing or almost nothing about it.
B. Used it a little, beginner level.
C. Some expertise, lots of gaps though.
D. Lots of expertise, a few gaps.
E. Know too much; I have no life.
About you…

What is your familiarity/confidence with programming in C?
A. Know nothing or almost nothing about it.
B. Used it a little, beginner level.
C. Some expertise, lots of gaps though.
D. Lots of expertise, a few gaps.
E. Know too much; I have no life.
About you…

What is your familiarity/confidence with programming in C++?

A. Know nothing or almost nothing about it.
B. Used it a little, beginner level.
C. Some expertise, lots of gaps though.
D. Lots of expertise, a few gaps.
E. Know too much; I have no life.
About you…

What is your familiarity/confidence with using version control with Git?

A. Know nothing or almost nothing about it.
B. Used it a little, beginner level.
C. Some expertise, lots of gaps though.
D. Lots of expertise, a few gaps.
E. Know too much; I have no life.
About you…

What is your familiarity/confidence with proving running time bounds?
A. Know nothing or almost nothing about it.
B. Used it a little, beginner level.
C. Some expertise, lots of gaps though.
D. Lots of expertise, a few gaps.
E. Know too much; I have no life.
Assignment 0: Due Tuesday @ 10am

Choose a partner, if you want the option of working with one.
Pair Programming guidelines

Basic rules
• All code written with two programmers at one machine
• You must plan *ahead of time* when you will get together
• Don't be a jerk

Selecting partners: Factors to consider
• Schedule compatibility
• Roughly equal “eagerness”
• Roughly equal experience

You must choose your partner by MONDAY night, definitely before TUESDAY 10am
Which of the following is/are a tree?

A. 

B. 

C. 

D. A & B
E. All of A-C
Which of the following is/are a tree?

A. 

B. 

C. 

D. A & B

E. All of A-C
PA0

- Don’t forget to choose a partner and complete PA0 by tomorrow (Oct 7 @10 am).
- We should have you setup on gitLab by noon. Wait for the announcement.
- You can start working on PA1 soon after.