15-121
Intro to Data Structures

Lecture #1 – Introductions

August 24, 2014

Mark Stehlik

Outline for Today

Course Administration

Overview of Course

A (very basic) Java review (to be continued)

Me

Mark Stehlik (mjs@cmu.edu, 2123)

Background:

- Associate Dean for Education
- Teaching Professor
- ALS Ice bucket challenge participant…

call me ???

Our Teaching Assistant

- Yousuf Akhlaq
- office hours coming soon

You

- mostly IS students (and some IS wannabees)
- let's find out who's who (and see how badly Mark can pronounce your names…)

Prerequisites

- Formally:
  - 15-110
- Practically:
  - laptop or desktop computer
  - the Java JDK and an editor (or IDE)
    - Dr. Java
    - Eclipse Standard
  - basic programming skills

Course content

An Introduction to Data Structures

- understanding algorithms
- analyzing algorithms (time/space efficiency)
- in order to gain efficiency, data needs to be structured to allow for optimum access (e.g., Google, or iTunes)
- working with larger programs

Two parts

- conceptual information about various data structures
- using/implementing those data structures in your programs

Course Elements

- Lectures (notes posted to website after class)
- Quizzes (8 @ 1.5% each) = 12%
- Programs (7 @ 7% each) = 49%
- Midterm & Final Exam (14/25% each) = 39%

Course Logistics

- Course website (complete by Tuesday):
  - www.cs.cmu.edu/~mjs/121
- Lectures
  - Come on time; use of electronic devices is prohibited during lecture (you're here to learn Data Structures, not surf the web or talk to your friends – do that on *your* time)
- Handin
  - via email

Collaboration Policy

There are no group assignments in this class

Everyone should read and abide by:

http://www.cmu.edu/policies/documents/AcademicIntegrity.htm

Here is some additional information for this course:

- You *are* allowed to talk with/work with other students on homework assignments
  - You can share ideas
  - You can discuss things at a high (algorithmic, non-code) level (pictures)
  - **You should not share (or even look at) code!**
- You *must* turn in your own work
  - Your solution should be different than others
  - The harder the assignment, the more differences we should see
  - **You should NEVER copy another student's file as a basis for your solution. You should not let your files be copied by others!**
- If you need help debugging, who do you ask?

About the Homework & Quizzes

- Eight quizzes [expected]
  - Given in class on Thursday; returned Sunday
- Seven homework assignments (programs) [expected]
  - Assigned Tuesday; due Monday at midnight
- Late homework
  - Everyone has problems…
  - no late homework will be accepted.

Outline for Today

✓Course Administration

→Overview of Course

A (very basic) intro to Java and

Rough Course Outline (topics)

Intro, Java, Objects, Arrays & ArrayLists, Efficiency

Linked Lists, Recursion (I), O-notation

Interfaces, Iterators, Stacks & Queues

Searching & Sorting, Trees, BSTs, Recursion (II)

Priority Queues, Heaps, Sets & Maps

Hashing, Graphs, Review & Final Exam

(Course website will have a more detailed syllabus)

Outline for Today

- ✓ Course Administration
- ✓ Overview of Course
- → A (basic) Java review
  - → and away we go…
  - → error messages aren't always as useful as they could be…