15-121
Intro to Data Structures

Lecture #1 – Introductions
August 29, 2017
Mark Stehlik
Outline for Today

Course Administration
Overview of Course
A (very basic) Java review (to be continued)
Me

Mark Stehlik (mjs@cmu.edu, Gates 6205)
Background:
  Teaching Professor
  Assistant Dean for Outreach
  CS Academic Advisor, Convocation speaker

call me ???
Our Teaching Assistant

- Yasir Khan (on loan from CMU-Q 😊)
- office hours coming soon
You

- mostly IS students

- let’s find out who’s who (and see how badly I can pronounce your names…)
Prerequisites

• Formally:
  – 15-112

• Practically:
  – laptop or desktop computer
  – the Java JDK and an editor (or IDE)
    • Dr. Java (only runs Java 6 on Mac)
    • Eclipse Standard
  – some 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 logistics

• Course website:
  – 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
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%
About the Homework & Quizzes

• Eight quizzes [expected]
  – Given in class on Wednesday; returned Thursday

• Seven homework assignments (programs) [expected]
  – Assigned Tuesday; due Monday at midnight

• Late homework
  – Everyone has problems…
  – no late homework will be accepted.
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?
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…