CS310 - Advanced Data Structures and Algorithms

Intro to PA1

October 1, 2019
Quick Intro to PAs

- Check out my late days policy: applies to PAs only. I allow five late days in total. You can distribute them among PAs as you like. Declaring late days allows you to submit your PA later without being marked down, as long as the total number of late days is \( \leq 5 \). Taking late days without notice, or exceeding 5 late days will cost you points.

- Make sure you know how to: Copy files to the Unix system, check permissions, compile and run on linux, and that you are familiar with the directory structure in Unix, know what packages are and how to work with them.

- If not – please refer to the Unix guide on the course webpage, the FAQ on the CS webpage and in general, GIYF.
Quick Intro to PAs

- Even if you used an IDE, try to compile and run your code on the unix system.
- It may work on your IDE but fail on Unix for a variety of reasons.
- Most common issues: Libraries missing or incorrectly linked, files not placed where they should, Windows is case insensitive which Unix is case sensitive.
- Remember that the PA is graded by a script which will fail if you don’t follow the instructions to a tee (including case sensitivity).
- You should submit the PA by 11:59PM of the submission date. The script will consider it a late submission if the files show a later modification date.
- Hence: Try to upload everything to gradescope in advance (the network may fail etc.).
- DO NOT leave everything to the last minute. You’ll never make it.
A package in java is a piece of code that performs a certain functionality.

Something like a module or a namespace.

Packages are a good way to organize the code and are very useful in large projects.

Examples: java.lang, java.io etc. (the package names are lang and io, respectively).

Source files of the same package should be in a separate directory with the same name.
Introduction to Packages

- All source files must start with a package statement. For example:
  package edu.princeton.cs.algs4;

- For outside classes, the package name becomes part of the class name.

- Packages can be defined inside packages. The directory structures and names are hierarchical.

- So if you download LinearProbingHashST.java and run it as-is, it should be referred to as edu.princeton.cs.algs4.LinearProbingHashST.

- When you remove the package declaration from the top, you have to import the classes from inside the edu.princeton.cs.algs4 package.

- For example: import edu.princeton.cs.algs4.In;
K&W code and library: http://algs4.cs.princeton.edu/code/
Installation and running instructions are at the bottom of the page. Read carefully!
Make sure you understand the performance of lookup tables: Hash, sorted (ST), sequential (a list).
Look at the following classes: ST, LinearProbingHashST, SequentialSearchST, SeparateChainingST. The code is available online and is well commented.
The data is available at:
http://introcs.cs.princeton.edu/java/data/
Specifically, use tale.txt (Tale of Two Cities). I may test on other files though.