CS310 - Advanced Data Structures and Algorithms

Spring 2022 – Intro to PA1

February 16, 2022
Quick Intro to PAs

- 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.
- I will be less inclined to hold your hand through Linux-related questions this time.
Quick Intro to PAs – reminder

- 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 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.
All source files must start with a package statement. For example:

```java
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.
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, 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).

You can start working on this question now.

Q2 to be covered next week (deletion). Plan accordingly!