CSC 372, Spring 2015
Assignment 1
Due: Tuesday, January 27 at 23:00

Introduction

I think of this as a minor assignment. I expect it will take you no more than a couple of hours but I recommend that you read through this write-up as soon as possible so that you can start thinking about the questions as a "background process".

There's no programming at all on this assignment. It's a combination of web research (for two problems), creative thought, pondering, and a little writing.

For each problem you are to answer via a plain ASCII text file. Use an editor like Sublime, vim, Emacs, Notepad++, etc. DO NOT submit Word documents, PDFs, Rich Text files, HTML documents, etc. As a double-check, your `.txt` files should look perfectly fine when displayed with `cat` in an OS X Terminal window or with `type` at a Windows command prompt.

Problem 1. (6 points) `morefacts.txt`

When covering slide 20 in the intro set (http://www.cs.arizona.edu/classes/cs372/spring15/intro.pdf) I said a sentence or two about various languages of interest. For this problem I'd like you to find three languages that are not mentioned on that slide and tell me a sentence or two about each.

I'll compile all the answers and post them on Piazza. Follow this format for your answers:

(1) The full response for each language should be a single line of text.
(2) Begin the line with the language's name followed by the year it appeared and then a colon, followed by one or more sentences with whatever you want to say.
(3) End each line with an attribution that is either your name or "anonymous".

As examples of both the format and the sort of thing I'm looking for, here are three of mine, one with anonymous attribution. I'll use `cat` to display my `morefacts.txt` and then `wc -l` to demonstrate it's only three lines:

```
% cat morefacts.txt
Ada 1980: The DoD's attempt to have one language for military embedded systems,
instead of 450. -- William Mitchell
Java 1995: The most rapidly adopted language of all time.   In Spring 1997 I gave
one lecture in 372 about Java as a rising language; by Fall 1998 it was being
taught in 127A. -- William Mitchell
Scala 2003: Proof that Germans should stick to beer and BMWs. -- anonymous
% wc -l morefacts.txt
3 morefacts.txt
```

Feel free to use Google, Wikipedia, etc., for research on this question but needless to say, no posts anywhere soliciting ideas.

Above I say, "the year it appeared" but that's often subject to debate. Feel free to believe Wikipedia or go with other sources.

Just to be clear, you may use anonymous attribution to keep your classmates from knowing you wrote a particular entry but what you submit must be original, not something you found on the net.

I'll award one point of extra credit for the top three, as judged by me, in each of two categories: factual and funny. Limit: Two points per student.

Problem 2. (6 points) `jp.txt`

Slide 31 in the intro set raises the idea of the philosophy of a language. In a nutshell, I think of the philosophy of a language as what it treats as important, or not. For this problem I'd like you to identify three elements of the philosophy of Java.

For this problem it's fine to brainstorm with classmates, Google for "what is the philosophy of java", etc., but what you submit must be stated in your own words.

A piece of low-hanging fruit in Java's philosophy that I'm hereby taking away by using it as an example is support for object-oriented programming. Here's what you might have said about that element:

> *Java supports the object-oriented paradigm by providing classes and inheritance. The "abstract" keyword allows classes and methods to be marked as abstract. The "static" keyword, although poorly named, supports the concept of class variables and methods.*

Problem 3. (2 points) `measure.txt`

Slide 23 in the intro set cites some attempts to measure language popularity. Adam Bard and indeed.com use simple measures: new GitHub repositories and job postings, respectively. The TIOBE index is more complicated. Just today I learned about http://www.code2014.com, a simple tweet-based survey.

For this problem I'd like you to invent another simple way to measure language popularity. For example you might say, "Stand at the intersection of Speedway and Campbell and count programming language-specific bumper stickers." That's not a bad first thought, but I'd be worried about a dearth of data points and not be inclined to award that idea full credit.

Along with describing your idea, mention any weaknesses you see with it. For example, a weakness with code2014.com was that it wasn't widely known. Another is that it was subject to inflation by promotion of it within user communities. It shows Delphi (Object Pascal) as more popular than C and C++, and I can't imagine that's true.

No web research or discussion with anybody else for this problem, please. It's just you and your brain on this one.

Any ideas that make me say "Wow!" will earn a point of extra credit.

If you should find yourself completely blank for an idea 24 hours prior to the deadline, ask me for a hint.

Problem 4. (ZERO points) `whynot.txt`

Yes, this problem is worth no points but I'm curious to see who'll do it anyway!

Java allows arrays to be accessed with subscripts but to fetch characters from a `String` we must use `charAt()`. I see this as a non-orthogonality in Java. What's a possible rationale that led the designers of Java to have this inconsistency?

For me to possibly be impressed with your answer you'll have to specifically state that you came up with

whatever you did all by yourself, no Googling, discussion, etc.

Problem 5. Extra Credit `observations.txt`

Submit a plain text file named `observations.txt` with...

(a) (1 point extra credit) An estimate of how long it took you to complete this assignment. To facilitate programmatic extraction of the hours from all submissions have an estimate of hours on a line by itself, more or less like one of these:

```
Hours: 2
Hours: 1-2
Hours: 1.5+
```

Comments about the assignment are welcome, too. Was it too long, too easy, too hard, too detailed? Speak up! I appreciate all feedback, favorable or not.

(b) (1-3 points extra credit) Cite an interesting course-related observation (or observations) that you made while working on the assignment. The observation should have at least a little bit of depth. Think of me saying "Good!" as one point, "Interesting!" as two points, and "Wow!" as three points. I'm looking for quality, not quantity.

Turning in your work

Use the D2L Dropbox named `a1` to **submit a zip file named `a1.zip` that contains all your work. Do not submit individual files!** If you submit more than one `a1.zip`, I'll grade your final submission. Here's the full list of *deliverables*:

`morefacts.txt`
`jp.txt`
`measure.txt`
`whynot.txt`
`observations.txt` (for extra credit)

Note that all characters in the file names are lowercase.

Do not include your name, NetID, etc. in your `.txt` files—I like reading answers before knowing who wrote them. (As I expect you'd imagine, a D2L download of submissions includes identifying information at a higher level.)

Miscellaneous

Point values of problems correspond directly to assignment points in the syllabus. For example, a 10-point problem would correspond to 1% of your final grade in the course.

Remember that late assignments are not accepted, and that there are no late days; but if circumstances beyond your control interfere with your work on this assignment, there may be grounds for an extension. See the syllabus for details.