Reading from Files

10-17-2011

Opening Discussion

- Midterm answers.

- Minute essay comments

    - Doing math with strings of ints.

    - Are there times when for loops won't work and you have to do recursion?

    - Math with Doubles and printing Doubles.

    - Loops vs. higher-order functions.

    - How are operations with matrices represented in Scala?

    - Piping data into code.

More

- Shifting and sorting arrays.
- What range of numbers have characters associated with them?

Motivation

- Programs are more useful when they can interact with files.

- Everything that isn't in a file is lost when the program stops running.

I/O Redirection

- Using I/O redirection gives you some very basic ability to read from and write to files.

- It has big limitations though because there is only one file each way.

- More over, that one file blocks the ability to use either standard input or output.

Packages and Imports

- To read from a file we will be using the scala.io.Source type. To understand what that means, we need to talk about packages.

- Packages provide a way to organize code and group things of like functionality.

- Import statements let you use things without typing in their fully specified names.

The API

- To get a sense of the different package in Scala, it is helpful to look at the API.

- There are still lots of things in the API you won't fully understand. That isn't a problem as you aren't expected to get too much from it right now.

scala.io.Source

- Call Source.fromFile(fileName:String) to get a Source object that reads from a file.

- There are other methods in the main Source object that we will learn about later.

- The fromFile method technically gives you BufferedSource. This is for efficiency.

Iterators

- Both Source and BufferedSource are of the type Iterator[Char].

- An Iterator has most of the methods you are used to from List and Array. However, you can only go through it once.

- Fundamentally uses hasNext and next methods.

getLines

- This will give you an Iterator[String] that will go through the file one line at a time instead of a character at a time.

- You will often find this more useful.

Minute Essay

- What questions do you have?

- IcP #5 on Wednesday.