

Reading from Files

10-13-2010

Opening Discussion

- Midterm results.
- Minute essay comments
 - What are floats?

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.

The split Method

- Even full lines isn't always what you want. You might want multiple values for each line.
- As you saw on the midterm, the split method of String will break up the String on a delimiter and give you back an array.
- Delimiter is regular expression. Use + for 1 or more and * for 0 or more.
- Let's try using this to get something useful.

Minute Essay

- What questions do you have?
- Interclass problem:
 - Write a script that will read a file that x and y values for points on each line and print the shortest distance between any two points.