Strings and Tuples

9-9-2011

Opening Discussion

- Minute essay comments:
    - When would you need to do manual base conversions?
    - Going from binary to decimal in Scala. Hex and octal literals.
    - Color encoding/web pages.
    - grep = search, meaning of -o
    - Case in hex.
    - Practice.
    - Approach on quiz/test.
    - Cool Scala we can do now?

The math Object

- For other math functions use methods on the math object.

- For example, use math.sqrt() to take the square root of a number.

Characters

- The Char type represents a single character in Scala.

- The literal for Char has the letter that you want in single quotes.

- The Char is stored in the computer as a 16-bit unsigned integer encoded in Unicode.

- Unicode has the alphabet of every written language in it.

- You can convert to an Int to see the numeric values of characters.

Escape Characters

- Not all characters can be easily entered. For things you can't nicely type, use escape characters.

  - \n – for a new line
  - \t – for a tab
  - \" - to get a double quote
  - \' - to get a single quote
  - \\ - to get a backslash

Strings

- We have seen the String type and that re represent String literals by putting characters in double quotes.

- Escape characters can also go inside of normal strings.

- Strings have many methods. We can see the basics using tab completion. (If we put in some extra parentheses.)

Raw Strings

- There are some situations when using escape characters is a pain.

- For this, use triple double quotes to make a raw string.

- Anything you type between the triple double quotes will go into the string.

- They can span multiple lines even.

Variables

- It is very common to want to represent values with names.

- A variable is a name that we use to represent a value.

- In Scala we can declare variables using val or var.

  - val *name*:*Type* = *expression*

  - var *name:Type* = *expression*

- A val can't change it's value, a var can.

- The colon and type are generally optional.

Tuples

- Another type in Scala is the Tuple type.

- A tuple has comma separated values in parentheses.

- They give us a way to handle a fixed set of associated values.

- Assignment into a tuple does pattern matching.

Scripts

- We have spent most of our time in the REPL entering one statement at a time.

- When we want to do things repeatedly it is nice to put the commands in a file called a script.

- We can use vi to write a script and put Scala commands in the file.

- We can run it by specifying the file name after the command scala.

- Alternately, we can load it into the REPL.

Sequential Execution

- When you put commands into a script, they are normally executed one after the other from top to bottom.

- This is what we call sequential execution and it is the default way things happen.

- Order can be very significant for the instructions in a program.

Standard Input

- Scala provides a whole set of functions you can call to read from standard input.

  - readInt()

  - readDouble()

  - readLine()

  - And many more

- This can make your scripts far more useful as they can be used with different values each time you run them.

Some Problems

- We are still a little limited in that we can only do simple math and formatting, but let's try to do some things with that in scripts.

- We'll start with formatting money.

- Calculating hourly wages?

- Taking averages of grades?

- Suggestions?

Minute Essay

- What questions do you have about the topics we have been working on?