Computer Programming I Instructor: Greg Shaw

COP 2210

***Intro to the Scanner Class***

**I. Background**

* The *Scanner* class provides an easy way to "break up" a string into shorter, whitespace-delimited strings called *tokens*. (*Whitespace* means spaces, tabs, and newlines.)
* Among other things, this allows us to enter multiple input values, separated by spaces, when reading user input using *JOptionPane*.*showInputDialog()*.
* We create a Scanner object associated with the input string and call Scanner methods to extract each token*.* We can then process each token separately.
* The *Scanner* class is in Java's *utilities* package:

**import** java.util.Scanner ;

1. **Creating a Scanner Object Associated with a String**

Suppose that *input* is a String object variable.

To create a Scanner object called *scan* associated with the string *input*:

Scanner scan = **new** Scanner(input) ;

**III. Some Scanner Class Methods**

Assume we have created a *Scanner* object pointed to by *scan* (see above). Below are some typical method calls.

* *Scanner* methods skip over any leading whitespace characters, and then extract all consecutive non-whitespace characters, stopping when the next whitespace character is found.
  + String aString = scan.next() ;

Extracts the next token and returns it as a *String*

* + **int** anInt = scan.nextInt() ;

Extracts the next token and returns it as an int

* + **double** aDouble = scan.nextDouble() ;

Extracts the next token and returns it as a double

* If the next token is not a valid **int** or **double** literal, respectively, then an *InputMismatchException* is thrown!

**IV. The boolean Method *hasNext()***

* The Scanner class has a *boolean* method called *hasNext()* that returns *true* if there is at least one more token that has not yet been extracted. Otherwise (if all tokens have been extracted), *false* is returned
* Method *hasnext*() is used in a *while* loop when the exact number of tokens is not known in advance
  + See “*ScannerDemo.java*”
* If the exact number of tokens *is* known, then we just use *next()*, *nextInt()*, and *nextDouble()* to extract each one
  + *See “InputDemo2.java”*
* “Tokenizing” a string does not modify the string in any way!