**The Scanner Class**

The Scanner class allows an application to easily read strings, as well as other data types, from a file. Each string is considered a token. Tokens are separated by a delimiter, for example a space or the end-of-line code, and are returned as a String, or other data type depending on the method used. A Scanner object internally maintains a current position within the file so that each time another token is requested the current position is moved over.

You can indicate which file the data should come from by creating a new File object and specifying the name of the file as an argument. If no path is specified (as in the example below), the JRE will look in the current project directory, “J:/workspace/lab10/” for example for a file with the specified name, “testdata.txt”. You can specify a full path to the file, “J://workspace//lab10//testdata.txt” for example, to indicate the exact location of the file.

The Scanner class is not automatically available, and must be imported using the import statement, *import java.util.\*;*. An import statement is also needed to make the File class available, *import java.io.\*;*.

**Exceptions:**

In order to use a file, you need to modify the header of the main method. The new one is:

**public static void main (String [ ] args) throws Exception**

The addition of ***throws Exception*** states that the main method contains code that may cause an error (exception). When files are used, the possibility of an unrecoverable error increases significantly since you are now expanding your interaction with your computing environment. As an example, if your program tries to read from a file that doesn’t exist, your program will crash. Since these types of errors (exceptions) are more severe, you must either handle them (topic covered in a future course) or acknowledge that the error may occur. We simply acknowledge this.

**Example:**

Assume a data file, testdata.txt, exists and contains product information. The first line of the file contains an integer, 4, representing the number of products stored in the file. Each product has a description followed by the price on the next line.

4

Pencil

0.25

Pen

0.5

Marker

1.25

Stapler

14.99

The following will declare and instantiate a Scanner object, *fileScan*, linked to the data file, *testdata.txt*, then read and print all data from the file.

**package** testscanner;

**import** java.util.\*;

**import** java.io.\*;

**public** **class** TestApp

{

**public** **static** **void** main(String[] args) **throws** Exception

{

Scanner fileScan = **new** Scanner(**new** File("testdata.txt"));

**int** numItems;

String item;

**double** price;

numItems = fileScan.nextInt();

**for** (**int** i=0; i<numItems; i++)

{

item = fileScan.next();

price = fileScan.nextDouble();

System.*out*.println("Item: " + item + " Price: " + price);

}

fileScan.close();

}

}