ISD Week 5 Lab

1) Using a text editor, enter the following text into a file named "`numbers.txt`"

```
1.2   2.3  3.4  4.5
2.0   3.0  4.0  5.0
6.0   7.0  8.0  9.0
```

Open the file and read each line, convert the numbers in each line to doubles, and print each row of numbers and their total.

2) Using a text editor, enter the following table into a file named "`data.txt`".

Northwest	NW	Joel Craig	3.0	.98	3	4
Western	WE	Sharon Kelly	5.3	.97	5	23
Southwest	SW	Chris Foster	2.7	.8	2	18
Southern	SO	May Chin	5.1	.95	4	15
Southeast	SE	Derek Johnson	4.0	.7	4	17
Eastern	EA	Susan Beal	4.4	.84	5	20
Northeast	NE	TJ Nichols	5.1	.94	3	13
North	NO	Val Schultz	4.5	.89	5	9
Central	CT	Sheri Watson	5.7	.94	5	13

Load the file and read in each line. Modify the fifth column such that the numbers all begin with a zero, i.e. the first and second rows of the modified table are:

Northwest	NW	Joel Craig	3.0	0.98	3	4
Western	WE	Sharon Kelly	5.3	0.97	5	23

Write the modified table to the file "data_update.txt".

Hint: pass each line of the table file as a `String` to another `Scanner` constructor. Use the new `Scanner` to read the single line of the table as a sequence of characters. Then find the second decimal point.
Create a `PrintWriter` object that is associated with a file for output. Use `print` and `println` to write your output to the file. Be sure to invoke `close` on the stream when you are finished. Use a text editor to examine the output file and verify that it is correct.

3) In this exercise you will develop skills with input and output of text strings. Start with the code below and complete the following tasks:

```
public class TextIO
{
   public static void main(String[] args)
   {
      String input1 = "Now is the time for all good men to come to the aid
of their country.";
      String input2 = "abcdefghijklmnopqrstuvwxyz0123456789";
      String input3 = "a1b2c3 d4";

   }
}
```

a) Read `String input1` with a `Scanner` and print each word.
b) Read `String input2` with a `Scanner` and print each character.
c) Read `String input3` with a `Scanner` and print each character and whether it is a letter, a digit, or whitespace.

4) Write a program that processes command line arguments. The arguments are a mixture of numbers (`int`s and `double`s). Concatenate all the arguments into a single string. Scan the string, then print each number on a separate line and whether it is an `int` or a `double`.

Test your program with each of the following lists of arguments:

a) 1 2 3 4 5
b) 1.1 2.2 3.3 4.4
c) 1 2.9 3 4.9 5 6.9

5) Start with the code below and complete the `getInt` method. The method should prompt the user to enter an integer. Scan the input the user types. If the input is not an `int`, throw an `IllegalArgumentException`; otherwise, return the `int`.

```
import java.util.Scanner;

public class Throwing
{
   public static void main(String[] args)
   {
      int x = getInt();
      System.out.println(x);
   }

   public static int getInt()
   {
      // your code goes here
   }
}
```

6) Modify the program from Question 4 so that `getInt` throws an `IOException` instead of an `IllegalArgumentException`. Modify the main program so that it catches and prints the `IOException`.