# Warm-up

Set the preferences in Dr. Java so that the working directory is the location of the files you will use in lab today. If you work at home, you will need to change the working directory to whatever directory you use at the time you are working with text files. If you work in eclipse, make sure to add the text file to the project.

Copy Total.java and numbers.txt into your working directory. Run Total.java, using numbers.txt for the input file and numbersOut.txt as the output file. The text file numbers.txt is provided.

### General directions:

Write a program named **ZeroSum.java** that accepts two lists of integers and reports whether or not there are two values, one from each list, with sum equal to zero. This program will read two files of integers into a two arrays, and determine if two arrays of integers meet the zero sum criterion. For example, the two arrays [ 2, 3, 1, 7, -9] and [ 6, 7, 5, 3, 4, -2] satisfy the “ zero sum” criterion because the first array contains 2 and the second -2.

The three data files are **num1**.txt, **num2**.txt and **num3**.txt. We will assume that the files contain the same number of items. We will also assume that the first number in the file indicates how many valid numbers follow. You will use only two files at a time. Files **num1** and **num2** should yield a **true** zero sum, and **num2** and **num3** will yield **false**.

**Step 1.**

Write and test a static method to read the data file of integers. Since you need to read two files, this is a more efficient way to complete this task because you can avoid redundant code. This method reads a text file with the name as the only parameter. It returns the array of integers that were in the file. Its signature is

**public static int[] readFileInt(String fileName) //**method returns the integer array and will need to throw an IOException

Recall that the first number in the file is an integer that indicates how many items are in the file.

**Step 2.**

Write and test a static method that displays an integer array. This method is useful for displaying the arrays that the readFIleInt method returns. The first parameter is the integer array to display, and the second is the number of items in the array to display. The second parameter is useful for displaying an array that is not full. Its signature is

**public static void displayList (int [] list1, int n)** //list1 is the array to display, n is the number of items to display in the array. We don’t always display the entire array.

**Step 3.**

Write and test a static method that returns true if and only if there are two values, one from each array, with sum equal to zero. There are two parameters, the two integer arrays to check for the zero sum criterion described above. Its signature will be

**public static boolean isZeroSum (int [] list1, int[] list2)**

Your **ZeroSum** main method should read two files of integers into two separate arrays (call your Step 1 method twice that reads the file of integers, each time reading a different file), display the arrays (call your Step 2 method) and then determine and display whether the two arrays meet the zero sum criterion ( call your step 3 method).

When you have everything running successfully,

* Be sure to add your ID block to the top of the file
* Paste the output from your console window into a comment at the end of the ZeroSum.java file.

Your submission should look like this, if your name were Harry Prince and you worked on the lab entirely by yourself:

/\*\*

\* Name: Harry Prince

\* Instructor: Laurie Werner

\* Partner: None

\* CSE 271 HA

\* This program determines the zero sum criterion of two arrays.

\* The arrays of integers are read from two text files.

\*

\*/

**import** …

…

**public** **class** ZeroSum {

**…**

}

/\*

Comparing these two arrays for zero sum:

2, 3, 1, 7, -2

2, 3, 1, 7, -9

The result of the test is: true

Comparing these two arrays for zero sum:

2, 3, 1, 7, -9

6, 7, 5, 3, 4

The result of the test is: false

\*/