

## HW7.java

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//Professor Ziegler
//HW7 - Count Zeros
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import java.util.Scanner;    //needed to use Scanner
import java.io.*;           //needed to use PrintWriter

/* program 7 reads a set of values to an array and print them
 * as well as the size of the array and the number of zeros in it
 */
class pgm7{
    public static void main(String[] args) throws IOException{
        final int ARRYSIZE = 100;    //set max array size
        int[] numbers = new int[ARRYSIZE]; //array to store read-in values
        int size;    //to store size of the array
        int zeros;    //to store number of zeros in the array

        File myfile1 = new File("c:/myinput1.txt"); //create file object
        Scanner input1 = new Scanner(myfile1);    //read values for 1st time

        File myfile2 = new File("c:/myinput2.txt"); //create another file object
        Scanner input2 = new Scanner(myfile2);    //read new values to add

        //PrintWriter output = new PrintWriter(System.out);
        PrintWriter output = new PrintWriter("c:/myoutput.txt"); //output to file

        //call method readData() and store size of the array
        size = readData(numbers, input1, output);

        //call method countZeros() and store number of zeros in the array
        zeros = countZeros(size, numbers);

        output.println("The number of size array elements are 0 is " + zeros);

        //call method append() to add new values into the array and store new size
        size = append(size, numbers, input2, output);

        output.println();
        output.println("New values in the array:");
        for(int i = 0; i < size; i++)    //print new values in the array
            output.print(numbers[i] + " ");

        output.println();
        output.println("The number of integers in the new array is " + size);

        //call method countZeros() again and store the new number of zeros
        zeros = countZeros(size, numbers);

        output.println("The number of new size array elements are 0 is " + zeros);

        output.flush();    //flush the buffer
        System.out.println();
        System.out.println("The program has completed"); //prompt program is finished
        input1.close();    //close input file 1
        input2.close();    //close input file 2
        output.close();    //close output file
    }

    /*method readData()
     * input: vals - an array of integers
     *         input - Scanner object
     */
}
```

# HW7.java

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*      output - PrintWriter object
* Process: read the values from file into the array and print them as well
*      as the size of the array
* output: print the values of array and the size of it
*      return the size of the array
*/
public static int readData(int[] vals, Scanner input, PrintWriter output){
    int i = 0;
    output.println("The values in the array:");
    while(input.hasNext()){
        vals[i] = input.nextInt();
        output.print(vals[i] + " ");
        i++;
    }
    output.println();
    output.println("The number of integers in the array is " + i);
    return i;
}

/*method countZeros()
* input: n - an integer(number of values in the array)
*      vals - an array of integers
* Process: loop through the array to count the number of zeros
* output: return the number of zeros (count)
*/
public static int countZeros(int n, int[] vals){
    int count = 0;
    for(int i = 0; i < n; i++){
        if(vals[i] == 0)
            count++;
    }
    return count;
}

/*method append()
* input: vals - an array of integers
*      input - Scanner object
*      output - PrintWriter object
* Process: read the values from file and append them into the array starting
*      from right after the last value of the original array
* output: return the size of new array (n + i)
*/
public static int append(int n, int[] vals, Scanner input, PrintWriter output){
    int i = 0;
    while(input.hasNext()){
        vals[n + i] = input.nextInt();
        i++;
    }
    return (n + i);
}
}

```