EXERCISE V

Go as far as you can!

5.1 (Eliminating duplicates) Write a method to eliminate the duplicate values in the array using following method header:

```
public static int[] eliminateDuplicates(int[] numbers)
```

Write a test program that reads in ten integers, invokes the method, and displays the result. Here is the sample run of the program:

```
Enter ten numbers: 1 2 3 2 1 6 3 4 5 2 ↵Enter
The distinct numbers are: 1 2 3 6 4 5
```

5.2 (Counting occurrence of numbers) Write a program that reads the integers between 1 and 100 and counts the occurrences of each. Assume the input ends with 0. Here is a sample run of the program:

```
Enter the integers between 1 and 100: 2 5 6 5 4 3 23
  43 2 0 ↵Enter
2 occurs 2 times
3 occurs 1 time
4 occurs 1 time
5 occurs 2 times
6 occurs 1 time
23 occurs 1 time
43 occurs 1 time
```

5.3 (Twin primes) Twin primes are a pair of prime numbers that differ by 2. (Identical arrays) Two arrays list1 and list2 are identical if they have the same contents. Write a method that returns true if list1 and list2 are identical, using the following header:

```
public static boolean equal(int[] list1, int[] list2)
```

Write a test program that prompts the user to enter two lists of integers and dis- plays whether the two are identical. Here are the sample runs. Note that the first number in the input indicates the number of the elements in the list.

```
Enter list1: 5 2 5 6 6 1 Enter
Enter list2: 5 5 2 6 1 6 Enter
Two lists are identical
```

```
Enter list1: 5 5 5 6 6 1 Enter
Enter list2: 5 2 5 6 1 6 Enter
Two lists are not identical
```