Programming Assignment #7

Arrays II

1) Write a program that given an array of integers, determine the number of repeated integers and their counts.

For example if the given array is:

{13, 34, 22, 4, 499, 4, 22, 18, 4, 1, 1}

Input:

Enter array size: 11

Enter array elements:

13

34

22

4

499

4

22

18

4

1

1

Output:

There are 3 repeated numbers:

22: 2 times

4: 3 times

1: 2 times

2) Write a program that given a two-dimensional array, reorders the rows such that the row with the highest row sum is the first row.

If the program will be called with the following array

```
int [][] m = new int [] [] {new int [] {1, 3, 5, 9},
                            new int [] {2, 100},
                            new int [] {2, 2, 3}  }
```

The output should be

```
2 100
1 3 5 9
2 2 3
```

For example:

Input:

Enter number of rows: 3

Enter row#0 size: 4

Enter row#0 elements:

1

3

5

9

Enter row#1 size: 2

Enter row#1 elements:

2

100

Enter row#2 size: 3

Enter row#2 elements:

2

2

3

Output:

2 100

1 3 5 9

2 2 3

---

3) Write a program to transpose a square two-dimensional array in place **without** creating a new second array.

Matrix transpose interchanges each row of a square matrix with the corresponding column.

It writes the rows of the matrix as columns of the transposed matrix

For example:

5 30 15

20 10 9

8 7 1

Should be transposed to:

5 20 8

30 10 7

15 9 1

Input:

Enter matrix size: 3

Enter row#0 elements:

5

30

15

Enter row#1 elements:

20

10

9

Enter row#2 elements:

8

7

1

Output:

5 20 8

30 10 7

15 9 1

Hint: You need to use **swapping** to do the transpose in place.
