Problem 1

Write a program which finds the difference between the maximum and minimum elements of a given array.

Problem 2

Write a program which swaps maximum and minimum element of a given array. Print the array before and after this operation.

Problem 3

Define in a program an array of non-negative integers, for example

```
int[] arr = {1, 5, 8, 2, 6};
```

and then print a vertical 'histogram' of data contained in the array, i.e., in subsequent columns as many asterisks as is the value of subsequent element of the array (columns aligned at the bottom). For the data as above, the program should print:

```
    *
    *
    *   *
  * *   *
  * *   *
  * *   *
  * * * *
* * * * *
```

Problem 4

Write a program which rotates a given array of **int**s by one position to the left, i.e., the first element is replaced by the second, the second by the third etc., and the last by the first. For example, the array

```
1 2 3 4 5
```

after rotation should become

```
2 3 4 5 1
```

Do not create any auxiliary arrays or Strings!

Problem 5

Write a program which for a given array of **int**s prints all its elements, but each value only once, without repetitions (and the number of different elements).
For example, for array

```
int[] arr = { 2,3,4,3,2,6,3,6,8,2,9 };
```

the result could be (the order of printed values is irrelevant):

```
4 3 6 8 2 9
There were 6 different numbers
```

Do not create any auxiliary arrays, collections or **String**s. Do not use any classes from packages other than the standard ***java.lang***. Do not modify the array (in particular, do not sort it).
