Programming III

Laboratory 2

Objectives

- String class

- arrays

Exercises

1. Create an array of *a* of *n* random generated numbers. The dimension of the array is passed like argument on command line. Resolve the following requests:

    a)   Display the array

    b)   Sort the array and display the sorted array

    c)   Copy a subarray of the array *a* in a new array, the start and stop indexes for coping are random generated

2. Get a sentence like an argument from command line and resolve the following requests:

    a)   Find how many words are in the sentence. A word can be separated by one ore multiple spaces or tabs.

    b)   Count the numbers of palindrome words from the sentence

    c)   Display the last 10 characters from the sentence.

    d)   Transform the sentence to uppercase and lowercase.

    e)   Find if a substring is present in the sentence.

    f)   Convert the sentence based on the following rule each vocal is replaced with vocal'p'vocal. Ex: i -> ipi, a->api

3. Initialize with constant values two arrays *a* and *b* of real numbers. Construct and display:

    a)   The matrix *m* where the matrix elements are calculated in the following way $m[i,j]=a[i]*b[j]$

    b)   The vector *v* where the vector elements are calculated in the following way $v[l]=min\{a[i],b[i]\}$

4. Execute the following code and try to explain the results

```
public class TestString{

   public static void main(String[] args) {

        System.out.println(new String("test").equals("test"));

        System.out.println(new String("test") == "test");
```

```java
        System.out.println(new String("test") == new String("test"));

        System.out.println("test" == "test");

        System.out.println("test" == "te" + "st");

        System.out.println("test" == "!test".substring(1));

    }

}
```