Java 17 for beginners

by TPC

Set of tasks 3

1. The Text Analyzer. Write a program that analyzes an inserted text. The result should include the total number of characters (without spaces), the number of uppercase letters, the number of lowercase letters, the number of numbers, the number of words, and the number of special characters like !.-?""'' etc., except " ".

Example console output:

```
Analyzed text: Lor4em @ipsum dolor Sit amet, $$ consectetur '' " adipi1scing! elit.
Result:
Total number of characters: 58
Number of uppercase: 2
Number of lowercase: 45
Number of numbers: 2
Number of special characters: 9
Number of words: 11

Process finished with exit code 0
```

2. Implement a bubble sort algorithm based on arrays of integers.

3. Write a program called 'The Email Name Generator' that takes an array of names and surnames and creates an email array based on a template. The single email should be created using the following template:

a) beginning of the email based on the first three letters of the name

b) then the last two letters of the surname

c) duplicates are not allowed. In that case, generate some number and append it after the surname part.

d) remember to append the '@tpc.com' suffix

e) all in lowercase

Input:

{

"Chelsea Valentine",

"Laurence Miranda",

"Laurence Miranda",

"Clementine Lara",

"Tiago Blackburn",

};

Output:

chene@mycompany.com

lauda@mycompany.com

lauda1@mycompany.com

clera@mycompany.com

tiarn@mycompany.com

4. Extend the calculator project from Set of Tasks 2 as follows:

a) rewrite the decision-making process from if to switch statement

b) add floating-point calculations

c) validate division by zero

d) add the exponentiation option

e) add the extraction of a square root option

f) add the possibility of setting a precision for the calculations

5. Rewrite task 5 from Set of Tasks 2, but this time improve the following things:

a) persist patients data in an array

b) update the printing table for the array, but do not print null values

c) add a variable to control an array size

d) rewrite the decision-making process from an 'if' to a 'switch' statement

e) all data in the pseudo-database has to be uppercase.

f) provide an age validation between 0 and 150

g) provide gender validation; there are 2 options: 'M' or 'F'.

h) provide temperature validation between 30.0 and 47.0 degrees Celsius