**Java practical task**

**Conditional statements**

Solve the next tasks:

* 1. read 3 float numbers and check: are they all belong to the range [-5,5];
  2. read 3 integer numbers and write max and min of them;
  3. read number of HTTP Error (400, 401,402, ...) and write the name of this error (Declare enum HTTPError)

**Loops. Arrays**

Solve the next tasks:

1. Ask user to enter the number of month. Read the value and write the amount of days in this month (create array with amount days of each month).
2. Enter 10 integer numbers. Calculate the sum of first 5 elements if they are positive or product of last 5 element in the other case.

**OOP: class, interface, object**

Create Console Application project in Java.

Add class Person to the project.

Class Person should consists of

* 1. two private fields: name and birthYear (the birthday year)
  2. properties for access to these fields
  3. default constructor and constructor with 2 parameters
  4. methods:
* *age* - to calculate the age of person
* *input* - to input information about person
* *output* - to output information about person
* *changeName* - to change the name of person

In the method main() create 5 objects of Person type and input information about them.

**Collections. Generic**

Declare collection *myCollection* of 10 integers and fill it (from the console or random).

* Find and save in list *newCollection* all positions of element more than 5 in the collection. Print *newCollection*
* Remove from collection *myCollection* elements, which are greater then 20. Print result
* Insert elements 1, -3, -4 in positions 2, 8, 5. Print result in the format: “position – xxx, value of element – xxx”
* Sort and print collection

*Use next Collections for this tasks: List, ArrayList, LinkedList*

**String. Regular Expression**

1. Enter the two variables of type String. Determine whether the first variable substring second. For example, if you typed «IT» and «IT Academy» you must receive true.
2. Enter surname, name and patronymic on the console as a variable of type String. Output on the console:
   * surnames and initials
   * name
   * name, middle name and last name
   * The user name can be 3 to 15 characters of the Latin alphabet, numbers, and underscores. Using regular expressions implement checking the user name for validity. Input five names in the main method . Output a message to the console of the validation of each of the entered names.

**Exception**

1. Create a method for calculating the area of a rectangle **int** *squareRectangle* (**int** a, **int** b), which should throw an exception if the user enters negative value. Input values a and b from console. Check the *squareRectangle* method in the method *main*. Check to input nonnumeric value.
2. Create a class *Plants*, which includes fields int *size*, Color *color* and Type *type*, and constructor where these fields are initialized. Color and type are Enum. Override the method *toString*( ). Create classes *ColorException* and *TypeException* and describe there all possible colors and types of plants. In the method *main* create an array of five plants. Check to work your exceptions.

**IO. Thread**

1. Output text «I study Java» 10 times with the intervals of one second (Thread.*sleep(1000);*).
2. Output two messages «Hello, world» and «Peace in the peace» 5 times each with the intervals of 2 seconds, and the second - 3 seconds. After printing messages, print the text «My name is …»
3. Prepare mytext.txt file with a lot of text inside.

Read context from file into array of strings.

Each array item contains one line from file.

Complete next tasks:

1) count and write the number of symbols in every line.

2) find the longest and the shortest line.

3) find and write only that lines, which consist of word «var»