

Apellidos: \_\_\_\_\_ Nombre: \_\_\_\_\_ Grupo: A

## JBenchOO

1. The general goal of this exam is to convert a supplied procedural code to an object-oriented solution.

The provided program App.java calculates the execution time of different operations carried out on an ArrayList by means of a procedural approximation (we imperatively indicate the instructions that we want the computer to execute through procedures).

As can be seen in the code, the design of the program does not follow the object-oriented paradigm learned in the subject and duplicate code parts are detected, which can be improved.

It is also noted that, to change the collection, it is necessary to modify said code by means of comments.

The proposed solution must meet the following objectives:

- Apply the principles seen in class of the object-oriented paradigm to improve the design of this program. Through this new approach, we will try to reuse as many lines of code as possible. As you can see from the provided solution, there is a lot of duplicate code.
- Program the solution so that it can calculate the performance of List structures seen in class (ArrayList and LinkedList). The solution will need to toggle between both structures at runtime.
- You must additionally implement the Util class, not supplied, but referenced in the code to provide the requested functionality:
  - o Util.ITERATIONS: number of iterations, for example, 1000.
  - o Util.getRandom(SIZE): returns an integer between 0 and SIZE-1.

### RECOMMENDATION:

1. Implement the Util class and the elements that are requested.
2. Test that the supplied code is 100% functional with that class and that it generates output that corresponds to the execution times for each executed operation. The times shown will not be representative, that is, it will not matter to us whether it shows 1 or 100.

Tools that may be used in the exam:

- Text editor.
- Compiler.
- JShell: if someone wants to run Java code quickly.
- The API will not be able to be consulted.

You will not be able to use any IDE (Visual Studio Code, IntelliJ, Eclipse, etc.)

It is requested:

- Implement all classes to respond to the statement.
- Improve the design of the supplied program. The delivered code may not have compilation or execution errors.
- Follow the package structure: exams.inter.domain (objects) and exams.inter.ui (App).
- Use enums.

## API

Package [java.lang](#)

### Class Math

static double

[random\(\)](#)

Returns a double value with a positive sign, greater than or equal to 0.0 and less than 1.0.