OBJECT-ORIENTED PROGRAMMING
Winter Semester of the academic year 2021-2022
Java Exercise 1 (Second Exercise of Group B)

Implement the following hierarchy of artifacts in Java. An artifact has an incremental number (index), a creator, and a creation year, which are assigned from the beginning and remain constant. Additionally, it has a function (getInfo) that prints the creator and creation year of the artifact, as well as a function (getIndex) that prints only the incremental number.

Masterpieces are a type of artifacts that additionally have information about the movement they belong to (movement) and their condition. This information is assigned from the beginning. The movement can be one of impressionism, expressionism, naturalism. The condition can be changed by assigning the appropriate value. The possible values are bad, good, excellent. Masterpieces are accompanied by a function (getInfo) that uses the getInfo function of artifacts to print all the information about the masterpieces.

Masterpieces are further divided into paintings and sculptures. Paintings have additional information about their length, width, and technique, which can be one of oil, aquarelle, tempera. All this information is assigned from the beginning and remains constant. Paintings are accompanied by a function (getInfo) that uses the getInfo function of masterpieces to print all the accompanying information as well as the surface area occupied by the painting. Paintings also have an evaluation function (evaluate) that takes movement and condition as arguments and determines whether a painting is acceptable based on whether its characteristics satisfy the given argument values. If no condition is given, the value good is considered. The condition excellent is accepted even if the specified value is good.

Sculptures, in addition to the information as masterpieces, also have information about the volume they occupy and their material, which can be one of iron, stone, wood. Sculptures are accompanied by a function (getInfo) that uses the getInfo function of masterpieces to print all the accompanying information. Sculptures also have an evaluation function (evaluate) that takes movement and condition as arguments and determines whether a sculpture is acceptable based on whether its characteristics satisfy the given argument values. If no condition is given, the value excellent is considered. If the value is specified as good, the value excellent is not acceptable.

The construction functions of the classes you will implement should print messages in the form Creating an instance of ⟨class⟩...

Implement an auction function that takes an array of artifacts, a movement value, and a condition value as arguments. For each of these artifacts:
1. Print their incremental number.
2. Using the getInfo function, print their details.
3. Print the result of the evaluate function for this artifact according to the values of characteristics given as arguments in the auction function.

To have a complete program, implement a main function that creates N random instances of the classes you have implemented, with random initializations, and calls the auction function

with the set of these objects, as well as values for movement and condition. N, as well as the values of movement and condition, should be provided from the command line. (Note: creators can be represented by strings in the form Creator I where I is an integer.)