Algoritms and Programming II

2022-2023 Spring

QUIZ-2 QUESTIONS (14.04.2023)

I) Write a Java class called "NumberController" that has the following instance variables and methods:

* An array to hold 20 "int" typed numbers.

* It has a **constructor method** that takes the filename "Numbers.txt" as the parameter. In the constructor method, first, the array is filled with the numbers read from the file. Then, the static method that will sort the array using the bubble sort algorithm will be called so that we have a sorted array of numbers.

* The static method **bubbleSort** that takes the array as the parameter and sorts the array using the bubble sort algorithm.

* A method called **searchBinary** that takes an "int" number as a parameter and searches if that number is in the array using the binary search algorithm. The searchBinary method returns true if the number is found in the array, otherwise it returns false.

* A method called **searchSequential** that takes an "int" number as a parameter and searches if that number is in the array using the sequential search algorithm. The searchSequential method returns true if the number is found in the array, otherwise it returns false.

II. Write a Java class called ControllerDemo that has a main method in which the following requirements are fulfilled:

* A NumberController class instance (object) is created.

* The user is required to input an integer value from the keyboard.

* The number input is searched using the searchBinary method and a message indicating whether the number is found or not is written to the console.

* The user is required to input another integer value from the keyboard.

* The number input is searched using the searchSequential method and a message indicating whether the number is found or not is written to the console.

EXAMPLE INPUT FILE (You can form such a file using Notepad)
Numbers.txt

565
452
789
877
845
130
808
456
555
505
782
125
100
654
385
757
788
458
224
116

Rules for Delivering the Quizzes

1. Upload your project to the Quiz-2 directory on EgeDers platform until **16.04.2023 Sunday 23:55** . When naming your project, use your 11 digit university student id and upload it in compressed form (such as 05110000222.rar or zip).

2. You can upload your project many times but the last uploaded version is saved.

3. The codes you write by yourself are more valuable. If a project that is prepared by plagiarizing from another student is detected, then both students will take zero (0) points.