

Name: _____

Date: 05.May.2022

Searching and Sorting Algorithms

This program provided to you has an array of Strings in random order.

Complete the methods as appropriate. Only write the line of code outputting your name at the beginning of the main method.

You will implement the sorting and searching algorithms required by our syllabus.

DO NOT MODIFY THE MAIN METHOD BELOW THE FIRST LINE TO OUTPUT YOUR NAME

Work through the test from the beginning. Your program should build and grow –do not start a new program for each point. During this test you may use **any** resources that you have created, class resources and notes but you are **not** allowed to use Internet or communicate in any way with others. Ensure that you comply with the OFS academic honesty policy.

<<< Please Turn Over >>>

Quarter 4 Practical IB Computer Science Array Test

Instructions	Program Display/Screen Output
1. Output your name :)	Ronald MacDonald
2. Complete the <i>printArray</i> method so that it prints the contents of an array of Strings, separated by commas. No comma at the end of the list!	> Strings to search for: kaori, benedikt, dulcie, amandie, kitti
3. Implement the bubble sort algorithm in the <i>bubble</i> method. Sort the strings in ascending (A-Z) order.	You may call the <i>printArray</i> at the end of your <i>bubble</i> method to visually check that it works, but it's not required.
4. Implement the selection sort algorithm in the <i>selection</i> method. Sort the strings in descending (Z-A) order.	You may call the <i>printArray</i> at the end of your <i>selection</i> method to visually check that it works, but it's not required.
5. Implement the linear search algorithm in the <i>linearSearch</i> method.	Searching algorithms Linear search for kaori (-1): -1 Linear search for benedikt (45): 45 Linear search for dulcie (0): 0 Linear search for amandie (102): 102 Linear search for kitti (69): 69
6. Implement the binary search algorithm in the <i>binarySearch</i> method.	Searching algorithms Binary search for kaori (-1): -1 Binary search for benedikt (14): 14 Binary search for dulcie (33): 33 Binary search for amandie (4): 4 Binary search for kitti (65): 65
7. Write an <i>isSortedAsc</i> method that returns true if the array is sorted in ascending order, or false otherwise.	Use this method to successfully complete further instructions
8. Write an <i>isSortedDesc</i> method that returns true if the array is sorted in descending order, or false otherwise.	Use this method to successfully complete further instructions
9. Modify your <i>binarySearch</i> method so that it returns -2 if the array is not properly sorted (½ mark). Use one of your sorting methods to sort the array as required (full mark)	binarySearch(original, "chandal") [-2 or 24] = -2 binarySearch(original, "chandal") [-2 or 24] = 24
10. Write the <i>sortedMode</i> method. It will return the String unsorted, ascending or descending depending on how the contents of the array parameter.	The original array is unsorted ... Array b is sorted in ascending order. ... Array s is sorted in descending order.