**Computer Science 2**   **Lab # 05**



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**CS2 Section # 01**

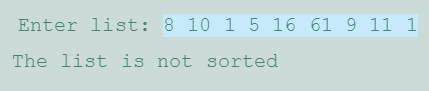
**Due:** Problem A by the **end of the lab** and Problems B by the end of **Saturday** of the same week.

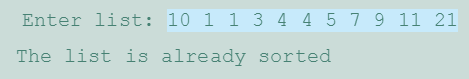
**TOPIC:**

**Project A:**

**Problem Description:**

Write a test program that prompts the user to enter a list and displays whether the list is sorted or not. Here is a sample run. Note that the first number in the input indicates the number of the elements in the list.





**Analysis:**

(Describe the problem including input and output in your own words. Type your answer in the following with **BLUE font color**)

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| **…**  **INPUT: The input includes the user entering the size of the array, which is the first number given, followed by all the elements of the array that fit the size of the first number given.**  **OUTPUT: The output will be a print statement saying either “The list is not sorted”, indicating that the array is not order, or “The list is already sorted”, indicating that the array is in order.** |

**Design:**

(Describe the major steps for solving the problem. Type your answer in the following with **BLUE font color**)

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| **A major step into solving this problem was trying to figure out how to determine if the array was sorted or unsorted from the first to the last element, I had to go through the array and check the two elements next to one another, and if the first element was larger, I would increment a counter to indicate that it was not in order. This counter determined whether or not the array was sorted.** |

**Coding:** (Copy and Paste Source Code here. Type your answer in the following with **BLUE font color**)

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| **import java.util.Scanner;**  **public class ArraySorted{**  **public static void main(String[] args){**  **Scanner input= new Scanner(System.in);**  **System.out.print("Enter list: ");**  **int size= input.nextInt();**  **int[] arr= new int[size];**  **for(int i=0; i<arr.length; i++){**  **arr[i]= input.nextInt();**  **}**  **//checking if array is sorted**  **int notSorted=0;**  **for(int i=0; i<arr.length-1; i++){**  **if(arr[i]> arr[i+1]){**  **notSorted++;**  **}**  **}**  **if(notSorted>0){**  **System.out.println("This list is not sorted");**  **}**  **else{**  **System.out.println("This list is already sorted");**  **}**  **}**  **}** |

**Testing:** (Describe how you test this program. Type your answer in the following with **BLUE font color**)

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| **RUN three times, using the same input as in the sample runs:**  **Test 1:**  **Enter list: 5 1 1 3 5 7**  **This list is already sorted**  **Test 2:**  **Enter list: 5 70 9 12 14 9**  **This list is not sorted**  **Test 3:**  **Enter list: 7 1 2 3 4 5 6 7**  **This list is already sorted** |