Pham Huu Hung – 102643407

Assignment 1

Task 1: 7 concrete test cases

Input test with unordered list of elements: [1, 10, 5, 3, 4, 7, 6]
Intended output: [1, 3, 5, 7], [4, 6, 10]
Justification: If the input was an unordered list, if the requirement is not ordered in ascending order, the program fails. If, however, the output was the expected output, the program does not have any problems

Input test with ordered list of elements: [1, 3, 4, 5, 6, 7, 10]
Intended output: [1, 3, 5, 7], [4, 6, 10]
Justification: Because the intended output is a sorted list in an ascending order, by feeding the intended input in, we get no difference in output out because there is no action required to be done by the program. If the program produces an output that is different to the input, the program is faulty.

Input test with large number elements: [122, 9982, 2231, 213, 1211, 10992]
Intended output: [213, 1211, 2231], [122, 9982, 10992]
Justification: with the previous test cases, we only use small numbers to test our program. But in this test case, we use large number to test program ability with lager numbers.

Input test with duplicated elements: [1, 2, 3, 3, 4, 5, 5, 6, 6, 8, 9]
Intended output: [1, 3, 5, 9], [2, 4, 6, 8]
Justification: Because the intended output should contain 2 lists of no duplicated integers. So, all the duplication of element 3, 5, 6 should not appear in the output lists.

Input test with all odd elements: [1, 3, 5, 9, 11, 7]
Intended output: [1, 3, 5, 7, 9, 11], []
Justification: Because the output list may be an empty list for some inputs, we could have a list with all odd elements and a list with no elements.

Input test with only one element: [2]
Intended output: [], [2]
Justification: This is a valid test case. Normally, the program would contain two or more elements as the program function is to sort the elements into two lists. This test case should be able to check if the program works for one-element list.

Input test with all elements the same: [2, 2, 2, 2, 2, 2, 2, 2, 2]
Intended output: [], [2]
Justification: Normally, the program would contain different elements as the program function is to sort the elements into two lists with no duplication. This test case should be able to check the program ability to remove all the duplication and remain one only.

Task 2: Choice of a single test case
[9982, 122, 9982, 2231, 213, 1211, 10992]
Intended output: [213, 1211, 2231], [122, 9982, 10992]

Justification: In the given topic, the program main functions include separating the list into **two other lists**, **in ascending order**, and no **duplication.** That is the reason why we would try to create a test case that can check if those functions work well. Also, it should contain as much from other concreate test cases as possible.
The test case I choose, can check if the program can separate the list into two other list (odd and even), check if the program can order the two lists, and check if the program can remove duplication. Also, it can show if the program can work with large numbers