



## Sheet 4 (Searching - Sorting)

### Class Work

- 1- Write a program that contains the following functions:
  - a) Function to read 10 numbers from the user and put them in an array.
  - b) Function to sort this array of 10 numbers
  - c) Function to print the sorted array in ascending order.
  - d) Function to print the sorted array in descending order.
  - e) Function to read a number from the user and prints its place in the unsorted array and in the sorted one if exists, “non” otherwise.

### Home Work

- 1- Write a program that searches for a number in an array and prints all places of its occurrence.
  - Repeat the above program but sort the array first.
- 2- For the following array, show each pass of bubble sort to arrange the elements in descending order:

60, 60, 70, 10, 40, 20

  - Show the steps for bubble sort for the above list in ascending order.
- 3- For the following array, show all steps of selection sort to arrange the elements in descending order:

20, 16, 170, 50, 4, 22

  - Show the steps for selection sort for the above list in ascending order.
- 4- It is required to eliminate the repeated elements in an array of 20 values.
  - a) Show the steps using unsorted array.
  - b) Show the steps using sorted array.
- 5- Show the required steps needed to insert an element in a sorted array in its correct place.
  - Write a function to implement the above steps.
  - Write a program using the above function to sort an array of 5 elements?

