SE311 SPRING 2021-2022 / 20-05-2022
Lab Work 9 Template Method
Goal: Use *Template* Method

1. You will create sorting program that puts numbers in ascending and descending order.

2. Basically, you must create three classes called **Sort**, **AscendingSort** and **DescendingSort**.

3. **Sort** is base class which will have common methods for subclasses. It has following methods:
   a. *getInput:* takes numbers from user.
   b. *checkInput*: terminates *getInput* process when user enters negative number.
   c. *display*: prints out sorted numbers

4. **Sort** class will have a template method called "*sort"* to perform the sorting algorithm using bubble sort. The template method will first read input, then check the inputs, then perform the algorithm and finally display the result.

5. The template method will use a primitive operation "*compare"*: to control the order of the sorting. This method will be overridden.

6. The pseudo code for Bubble sort algorithm can be seen below:

```
func bubblesort( var a as array )
    for i from 1 to N
        for j from 0 to N - 1
           if a[j] > a[j + 1]
              swap( a[j], a[j + 1] )
end func
```

You will be making minor changes to this algorithm so that you can use it to sort in ascending and descending order.

7. Subclasses overrides necessary methods to sort inputs in ascending or descending order.

8. Write a main which tests both **AscendingOrder** and **DescendingOrder** classes.

9. Write another class **AscendingOrderNegative** which sorts non-positive numbers in ascending order. It stops when user enters 0 and ignores positive numbers