# 3.3 Second smallest (graded assignment)

**Due** 23 Sep 2019 by 23:59 **Points** 10 **Submitting** an external tool

- Take an unknown number of integers as input and print the second smallest number.
- If there is no second smallest number in the sequence the program should print an error message and quit.
- Write a function that takes a *vector* as argument and that returns an *int* containing the second smallest number. If no such number exists, the function should *throw* an *exception* that in turn is caught in *main*.
- Your program should compute its answer with a complexity no worse than $O(n)$. Note that this requirement excludes, e.g., sorting the sequence of numbers.
  - The professor means to say: "Your program should compute its answer with a complexity no worse than $O(n)$. Note that this requirement excludes, e.g., the use of sorting algorithms on the sequence of numbers."
- The program should read integers from *cin* until something non-numeric is entered.

Two examples of a correct execution of the program are shown below:

```
Enter the numbers in random order: (close by entering q)
34 254 1 -5 -13 q
The second smallest number is -5
```

And:

```
Enter the numbers in random order: (close by entering q)
4 4 4 4 4 q
error: no second smallest
```

This tool needs to be loaded in a new browser window

Load 3.3 Second smallest (graded assignment) in a new window