Python for physicists - exercise 6

Submission instructions - please read carefully:
• To be submitted by *** in the moodle (Lemida) system.
• *** files with py suffixes must be submitted - named exactly as detailed below for each exercise.
That is to say that:
• Do not submit complete projects, libraries, zip files, etc., and do not submit all exercises in one file, but in separate files with the names listed below.
• Make sure that the files run and do what is needed (on a recent version of Python, 3.5 or higher).
• Use only the commands we learned in the practice.

Exercise 1. Submit it as file name: ex06-01.py

In this question, please do not use the *numpy* library or other libraries, but only the commands of *Python*.
Write a program that accepts 5 numbers from the user in the following way:

Please enter five numbers:

And the user enters an input of 5 numbers separated by commas, for example like this:

30, 27.5, −18.23, 800, 5

If the user did not enter 5 numbers, or there is some other problem with the user's input (for example, characters that cannot be interpreted as numbers), the software must ask the user to enter the input again, in the following form:

Error. Please enter five numbers:

If the user enters a valid input, the software should print to the screen the average of the largest number and the smallest number among the 5 numbers.

Guidance: Read about Python's split function. Also, use *exceptions*.

Example: *Please enter five numbers:* 30, 27.5, −18.23, 800, 5
Result: 390.885

Another example:
Please enter five numbers: 30 27.5, −18.23, 800, 5
Error. Please enter five numbers: 30.27.5, 18.23, 800, 5

Error. Please enter five numbers: 1, 2, 3, 4
Error. Please enter five numbers: hello
Error. Please enter five numbers: 1.2, 2.3, 3.4, 4.5, 5.6
Result: 3.4

Exercise 2. Submit it as file name: ex06-02.py

Given a file containing pairs of numbers separated by commas, in the following structure:

1, 1.4
2.2, 4.5
3.8, 8.7
4.42, 15.824

and so on.

The code needs to read the data from the file and display two graphs, in the same window (i.e., with the command: *subplots*).

In the upper graph, the pairs of data will be shown as points (without lines between them), and in the lower graph, both the pairs of points and straight lines connecting them, which were obtained by interpolation by command of *scipy.interpolate.*