Guided Task 5: Inbuilt Functions

Objective

In this guided task, you'll use some inbuilt Python functions to present statistics on a set of given values.

Instructions

Your task is to present some statistics on the following students' grades that are read from a file.

data="100,30,53,67,85,87,50,45,51,72,64,69,59,17,22,23,44,25,16,67,85,87,50,45,51,72,59,14,50,55,32,23,24,25,37,28,39,30,33,35,40,34,41,43,94,95,59,98,99,44,45,47,48,49,53,61,63,69,75,77,60,83"

1. Add a new code file to your existing labs project and make it the startup file.
2. Copy the data string above into this file.
3. To extract information from this string, you'll need to split it by ',' as delimiter.
   Put the resulting List into a variable called **grades**.

   Tip: use the string's split function and pass it ',' as delimiter.
4. Display the minimum value of the grades.

   Tip: use the min() function.
5. Display the maximum value of grades.

   Tip: use the max() function.
6. Test your code and check if the values are correct.
   Did your code display **100** for the minimum value and **99** for the maximum?
   But how can 100 be a minimum?
   Think about this before reading the next step.
7. OK, as you've guessed it, we're dealing with a list of strings who just look like a List of numbers! That is why ‘100’ is less than ‘17’ because the first character '1' is the same but the second character '0' is less than the number '3'. So, you need to cast every element of a List of strings into a List of integers. This is a common task and a hard one to code, but the clever Python 3.0 gives us a tool called **map** to help us do this task.

   The **map** function was not covered in the lectures, so we'll cover this useful function here in this guided task.

   Just after splitting the string into a list of strings called grades, type:
   ```
   grades = list(map(int, grades))
   ```
   This line of code casts grades into a `list` of `int`s.
8. Now, run your code again. Does it give the right values for min and max (14 and 100)?

9. Display the average of grades to two decimal points.

   Tip: use the sum(), len() and round() functions.

10. Import the statistics library.

    Tip: at the first line of your file type `import statistics`

11. Use the statistics' mean() function to get the average grade to two decimal places.

    Tip: use the `statistics`.mean() function

12. Display the median values using the `statistics.median()` function.
    The median is the value that appears in the middle of your dataset, after you've arranged the data in value order (i.e. lowest to highest, or highest to lowest).

13. Use the string.format() function to display the min, max, average, mean() and median values.

Well done, you've completed this guided task!