F4 spec sheet:

Category counter

Mission command preamble: As in general, we won't tell you *how* to do something. That is up to you and your creative problem solving skills. However, we will tell you what we would like this function to do. So here are the specs of the function we would like you to write.

Purpose: Python has powerful functions to summarize the properties of variable arrays in terms of their descriptive statistics. However, sometimes you are dealing with categorical data, and categorical data needs special treatment. Of course, there is the histogram, but that presumes continuous data. That is not always a given. Here, we would like you to create a function that simply counts the absolute frequency of how often a given number (usually representing a category) is present in an array. This will come in handy later.

Specific things we would like this function to do:

a) Take in a single variable input.

b) Determine how many unique values (representing categories) are in this input variable.

c) Count how many times each of these numbers in b) appears in the input

d) The function should return the unique values - sorted in ascending order - from b) and their count/frequency from c), once all calculations are done as a 2D array.

e) Assumptions: The input can be a 1D numpy array, a dataframe with 1 variable or even a list. However, you can assume it is a 1D numpy array as a default (unless specified otherwise). The number of entries (rows if it is a numpy array) should be flexible/up to the user.

f) Make sure the function has a clear header as to what inputs the function assumes, what outputs it produces and when it was written.

Input / output examples:

Input array A:

1
2
1
2
1

Input array B:

7
7
7
7.5
7.3

Output of catCounter(A):

1	**3**
2	**2**

Output of catCounter(B):

7	**3**
7.3	**1**
7.5	**1**

There is a larger example of input/output mappings in the catCounterInput/catCounterOutput files.