

Download from Canvas the data set temp.dat

Make a python script called **A15-temp.py** and in it do the following:

- a. Read in all the lines of **temp.dat** by using the `readlines` method and store data in list `L`.  
Print list `L`
- b. Make a new list `L1`, out of `L`, which does not contain comment lines (they start with a pound sign). Your code should work for any data set of any length and the comments lines could be anywhere. Do not hardcode. Use list comprehension and a membership operator. Print `L1` to screen.
- c. Calculate the average value of all the temperatures out of list `L1`. There is a built-in Python module called **statistics**, which contains functions that calculate statistical parameters. You should use the function **mean of the statistics module**. You can use `from statistics import mean`. The function `mean` works on a list of numbers. Make the list of numbers out of `L1` by using list comprehension. Remember to convert to float within comprehension. Print result to screen.  
1.5721576183421053

- d. Make a new list called Lstate, out of L1, which contains the state codes (2<sup>nd</sup> field). In list Lstate the state code should be listed only one time. Print Lstate to screen. Use a for loop and if statement with a membership operator.
- ```
['AZ', 'CA', 'CO', 'NV', 'NM', 'UT']
```
- e. Make a for loop over L1 and select the temperature values that are greater than 1.9. Print to screen state code and temperature value. Format the output to obtain:
- ```
AZ      1.9
CA      2.0
UT      2.0
UT      1.9
```
- f. Repeat point e but now write this formatted output in a file called results.txt by using the write method.

State	Temp
AZ	1.9
CA	2.0
UT	2.0
UT	1.9

Check the content of the file results.txt with cat command at the IPython console.

- g. Now make a dictionary called D, where the key is the state code, and the corresponding value is a list of temperature values (real numbers). Print D to screen. This can be done in different ways. Use a loop

*D={state: list of temperature values in float}*

```
{ 'AZ': [1.602087638, 1.480707645, 1.78030303, 1.806344697,
1.889656508, 1.90334022, 1.503546832], 'CA': [1.232179752,
1.138502927, 1.349018595, 1.525912534, 1.457046315, 1.98350551,
1.781590048], 'CO': [1.280255682, 1.808518423, 1.571410124,
1.454614325, 1.338985021], 'NV': [1.297301136, 1.306822486,
1.885235882, 1.724225207], 'NM': [1.386311983, 1.341059745,
1.480242769, 1.38277376, 1.668900654, 1.725641357, 1.70802772,
1.513524449], 'UT': [1.385726584, 1.570402893, 1.461621901,
1.547443182, 1.578305785, 1.98931646, 1.901579718]}
```

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