



11.7. Accumulating Results From a Dictionary

Just as we have iterated through the elements of a list to accumulate a result, we can also iterate through the keys in a dictionary, accumulating a result that may depend on the values associated with each of the keys.

For example, suppose that we wanted to compute a Scrabble score for the *Study in Scarlet* text. Each occurrence of the letter 'e' earns one point, but 'q' earns 10. We have a second dictionary, stored in the variable `letter_values`. Now, to compute the total score, we start an accumulator at 0 and go through each of the letters in the counts dictionary. For each of those letters that has a letter value (no points for spaces, punctuation, capital letters, etc.), we add to the total score.

Save & Run

Original - 1 of 1

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```
1 f = open('scarlet2.txt', 'r')
2 txt = f.read()
3 # now txt is one long string containing all the characters
4 x = {} # start with an empty dictionary
5 for c in txt:
6     if c not in x:
7         # we have not seen this character before, so initialize a counter for it
8         x[c] = 0
9
10    #whether we've seen it before or not, increment its counter
11    x[c] = x[c] + 1
12
13 letter_values = {'a': 1, 'b': 3, 'c': 3, 'd': 2, 'e': 1, 'f': 4, 'g': 2, 'h': 4, 'i':
14
15 tot = 0
```

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Activity: 1 -- ActiveCode (ac10_6_1)

Line 18 is the tricky one. We are updating the variable `tot` to have its old number plus the score for the current letter times the number of occurrences of that letter. Try changing some of the letter values and see how it affects the total. Try changing `txt` to be just a single word that you might play in Scrabble.

Check your Understanding

1. The dictionary `travel` contains the number of countries within each continent that Jackie has traveled to. Find the total number of countries that Jackie has been to, and save this number to the variable name `total`. Do not hard code this!

Save & Run

5/14/2021, 9:13:41 AM - 2 of 2

Show in CodeLens

```
1 travel = {"North America": 2, "Europe": 8, "South America": 3, "Asia": 4, "Africa":
2
3 total = 0
4 for continent in travel:
5     total = total + travel[continent]
```

Activity: 2 -- ActiveCode (ac10_6_2)

Result	Actual Value	Expected Value	Notes
Pass	19	19	Testing that total is correct.

You passed: 100.0% of the tests

2. `schedule` is a dictionary where a class name is a key and its value is how many credits it was worth. Go through and accumulate the total number of credits that have been earned so far and assign that to the variable `total_credits`. Do not hardcode.

Save & Run

5/14/2021, 9:14:23 AM - 2 of 2

Show in CodeLens

```
1 schedule = {"UARTS 150": 3, "SPANISH 103": 4, "ENGLISH 125": 4, "SI 110": 4, "ENS 3
2
3 total_credits = 0
4 for course in schedule:
5     total_credits = total_credits + schedule[course]
```

[←](#)

Activity 3 -- ActiveCode (ac10_6_3)

Result	Actual Value	Expected Value	Notes
Pass	63	63	Testing that total_credits has the correct value.

You passed: 100.0% of the tests

[Data file:](#) scarLet2.txt

You have attempted 4 of 3 activities on this page

[→](#)

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