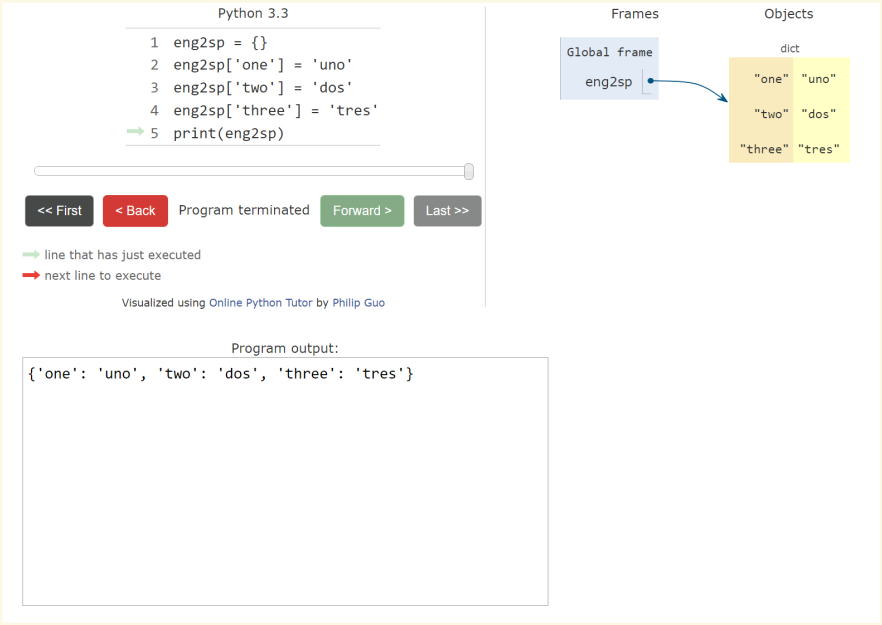
11.2. Getting Started with Dictionaries

To provide an example of this new kind of datatype, we will create a dictionary to translate English words into Spanish. For this dictionary, the keys are strings and the values will also be strings.

One way to create a dictionary is to start with the empty dictionary and add **key-value pairs**. The empty dictionary is denoted `{}`.

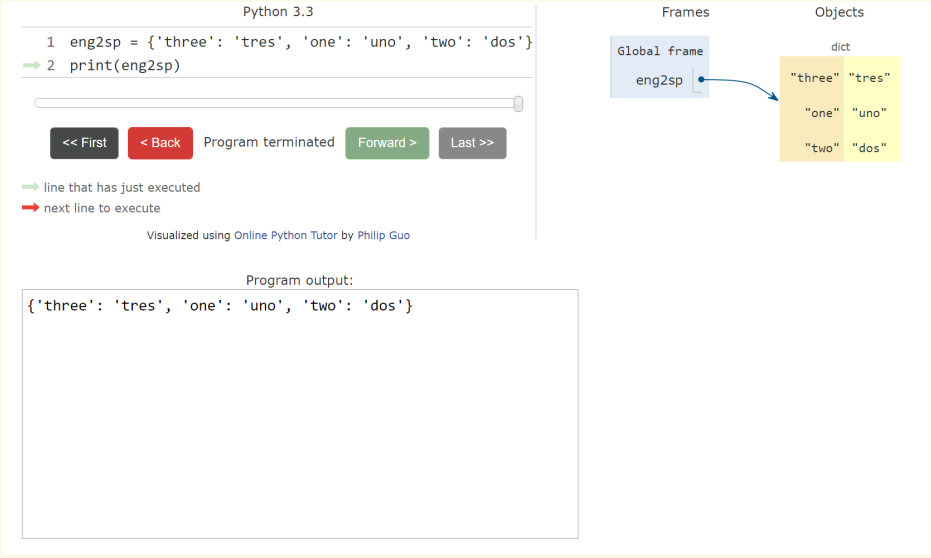


Activity: 1 -- CodeLens: (clens10_1_1)

The first assignment creates an empty dictionary named `eng2sp`. The other assignments add new key-value pairs to the dictionary. The left hand side gives the dictionary and the key being associated. The right hand side gives the value being associated with that key. We can print the current value of the dictionary in the usual way. The key-value pairs of the dictionary are separated by commas. Each pair contains a key and a value separated by a colon.

The order of the pairs may not be what you expected. Python uses complex algorithms, designed for very fast access, to determine where the key-value pairs are stored in a dictionary. For our purposes we can think of this ordering as unpredictable.

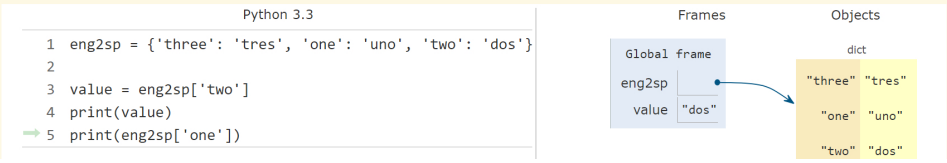
Another way to create a dictionary is to provide a bunch of key-value pairs using the same syntax as the previous output.

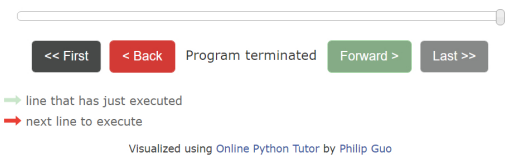


Activity: 2 -- CodeLens: (clens10_1_2)

It doesn't matter what order we write the pairs. The values in a dictionary are accessed with keys, not with indices, so there is no need to care about ordering.

Here is how we use a key to look up the corresponding value.





Program output:

```
dos
uno
```

Activity: 3 -- CodeLens: (clens10_1_3)

The key `'two'` yields the value `'dos'`. The key `one` yields the value `uno`.

Check your understanding

dictionaries-1-1: A dictionary is an unordered collection of key-value pairs.

- A. False
- B. True

Check me | Compare me

✔ Yes, dictionaries are associative collections meaning that they store key-value pairs.

Activity: 4 -- Multiple Choice (question10_1_1)

dictionaries-1-2: What is printed by the following statements?

```
mydict = {"cat":12, "dog":6, "elephant":23}
print(mydict["dog"])
```

- A. 12
- B. 6
- C. 23
- D. Error, you cannot use the index operator with a dictionary.

Check me | Compare me

✔ Yes, 6 is associated with the key dog.

Activity: 5 -- Multiple Choice (question10_1_2)

3. Create a dictionary that keeps track of the USA's Olympic medal count. Each key of the dictionary should be the type of medal (gold, silver, or bronze) and each key's value should be the number of that type of medal the USA's won. Currently, the USA has 33 gold medals, 17 silver, and 12 bronze. Create a dictionary saved in the variable `medals` that reflects this information.

Save & Run | 5/14/2021, 7:55:37 AM - 2 of 2 | Show in CodeLens

```
1 medals={}
2 medals['gold']=33
3 medals['silver']=17
4 medals['bronze']=12
5
6 print (medals)
7
```

```
{'gold': 33, 'silver': 17, 'bronze': 12}
```

Activity: 6 -- ActiveCode (ac10_1_1)

Result	Actual Value	Expected Value	Notes
Pass	[('br... 17)]	[('br... 17)]	Testing that medals is correct.

Expand Differences

You passed: 100.0% of the tests

4. You are keeping track of olympic medals for Italy in the 2016 Rio Summer Olympics! At the moment, Italy has 7 gold medals, 8 silver metals, and 6 bronze medals. Create a dictionary called `olympics` where the keys are the types of medals, and the values are the number of that type of medals that Italy has won so far.

Save & Run 5/14/2021, 7:55:57 AM - 2 of 2 Show in CodeLens

```
1 olympics={}
2
3 olympics['gold']=7
4 olympics['silver']=8
5 olympics['bronze']=6
6
7 print (olympics)
8
```

```
{'gold': 7, 'silver': 8, 'bronze': 6}
```

Activity: 7 -- ActiveCode (ac10_1_2)

Result	Actual Value	Expected Value	Notes
Pass	[('br..., 8)]	[('br..., 8)]	Testing that olympics was created correctly.

Expand Differences

You passed: 100.0% of the tests

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