Builtin_Type_Methods

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1 Python Course Homework 1: Python builtin type methods

2 Python Built-In Type Methods

As we discussed in the lecture, all Python objects are **Objects**, which means they have **Properties/Attributes** (data) and **Methods** associated with them. These are accessible via the **Dot Notation**.

For example, here we use a string **Class**'s *title()* method:

```
In [8]: film = 'the lion king'
        bigfilm = film.title()
        bigfilm
```

```
Out[8]: 'The Lion King'
```

It could also have been called like this:

```
In [10]: 'the lion king'.title()
```

```
Out[10]: 'The Lion King'
```

2.1 Useful String Methods

```
In [2]: print([method for method in dir('I am a string') if '_' not in method[0]])
```

```
['capitalize', 'casefold', 'center', 'count', 'encode', 'endswith', 'expandtabs', '
```

2.2 Useful Float Methods

```
In [4]: print([method for method in dir(1.0) if '_' not in method[0]])
```

```
['as_integer_ratio', 'conjugate', 'fromhex', 'hex', 'imag', 'is_integer', 'real']
```

2.3 Useful List Methods

```
In [6]: print([method for method in dir([1, 2, 3]) if '_' not in method[0]])
```

```
['append', 'clear', 'copy', 'count', 'extend', 'index', 'insert', 'pop', 'remove',
```

3 Exercises

Directions: Answer the following questions by adding lines of code to perform the task requested on the given data in each data cell. In many exercises, this will only require one line of code, but some may require multiple steps.

Tip: Learning a programming language is just as much about learning the names and locations of the functions as it is about learning how the language works. This is akin to how learning the vocabulary of a spoken language is just as important as learning its grammar.

Tip: All of these exercises can be completed with the methods of the built-in types: str, int, float, list, tuple, set, dict. **Go to https://docs.python.org/3/library/stdtypes.html for the documentation!**

3.1 Exercise 2: The Variable Subject

You want to label your figure title with the subject code, and the subject code changes depending on which subject is being shown! How could you stick a subject's name in your title string?

```
In [19]: subject = 'NOP234'
         title = "Mean Values of SUBJECT NAME's data over Time"
```

If you had formatted your title string in the following way, though, another string method would be more useful. Which one would you use for this title:

```
In [21]: subject1 = 'NOP234'
         subject2 = 'GHS673'
         title = "Performance Comparison between Subjects {} and {}"
```

3.2 Exercise 3: The Wrong Type

Your colleague sent you the data you needed, but in the text of an email! Seriously, who sends data like that, it's ridiculous! Well, now you need to make a list of numbers out of it. How do you do that without typing them by hand?

```
In [22]: strdata = '12 40 89 100 41.2 41.2 0.45 1.1'
```

3.3 Exercise 4: One more time!

You have a list of subjects, and you want to add another one! How do you do it?

```
In [25]: subjects = ['NOP234', 'GHS673', 'JGL212']
         new_subject = 'ASF193'
```

3.4 Exercise 5: Lots at once!

Now, a bunch of new subjcts appeared! How do you add them to the main list?

```
In [27]: subjects = ['NOP234', 'GHS673', 'JGL212']
         new_subjects = ['ASF193', 'THW994', 'JJZ231']
```

3.5 Exercise 6: Nice and Neat

Please put those subjects in alphabetical order. It looks better that way, doesn't it?

```
In [28]: subjects = ['NOP234', 'GHS673', 'JGL212', 'ASF193', 'THW994', 'JJZ231']
```

3.6 Exercise 7: The Bad Subject

Oh, no, 'JGL202' was a terrible subject, he intentionally ruined your study. Well, there's no way you're keeping him. How do you remove him from the list?

```
In [30]: subjects = ['NOP234', 'GHS673', 'JGL212', 'ASF193', 'THW994', 'JJZ231']
```

3.7 Exercise 8: The Limited Abstract

The conference says it only takes abstracts that have a maximum word count of 100 words. Did our abstract make the cut?

hint: the len() function is useful here

```
In [43]: abstract = """We analyze the locomotor behavior of the rat during explorat
         and show that digitally collected data (time series of positions)
         provide a sufftcient basis for establishing that the rat uses several dist
         third, and sometimes fourth gear). The distinction between these modes is
         time series into sequences of data points occurring between arrests (as as
         the data acquisition system). The statistical distribution of the maximal
         each of these episodes is then analyzed and shown to be multi modal. This
         distinct modes."""
```

Oh, wait, now that I look closer, it actually says that it's a maximum of 100 **unique** words– duplicated words don't count. How many unique words do we have in our abstract? (What a strange conference...)

Hint: There is a useful class for this...

```
In [ ]:
```

3.8 Exercise 9: The Balloon Seller

A balloon seller (oops, I mean the balloon Scientist!) is giving out free balloons to all the, umm, researchers in the neighborhood. He has three balloons, and wants to give them to Jenny, Manny, and Benny.

How can he assign them to them one at a time?

```
In [ ]: balloons = ['red', 'blue', 'green']
        jenny =
        manny =
        benny =
```

Of course, he could have given them all out in a single step. How?

```
In [44]: balloons = ['red', 'blue', 'green']
```

```
In [ ]:
```