

RE 2708

Computational Thinking and Programming for Real Estate



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Indentation is useful in Python in order to:

- a. Improve computational programming principles.
- b. Improve the readability of the code.
- c. **Separate different blocks of code without the need for other marks.**
- d. Separate essential from inessential blocks of code.
- e. All of the above.



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The difference between the round “()” and square “[]” brackets in Python is:

- a. The first is stable code, the other one not.
- b. The first is used for conditional statements, the other for repeated iterations.
- c. It's too complicated to explain this in an MCQ question...
- d. None. Both are used to delimit function arguments.
- e. **None of the above.**



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In Jupyter Notebooks, the term “Markdown” means:

- a. Text.
- b. Comments.
- c. Code.
- d. Studio.
- e. Slides.



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Exercise:

Write Python code that prints the text “Hello World!” on the screen.

Solution:

```
In [1]: print('Hello World')
```

```
Hello World
```

```
In [2]: "Hello World"
```

```
Out[2]: 'Hello World'
```

```
In [3]: 'Hello World'
```

```
Out[3]: 'Hello World'
```



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Exercise:

Write Python code that uses a function of a text object.

For example: “capitalize”...

Solution:

```
In [4]: uni_name = 'nus'  
uni_name.upper()  
Out[4]: 'NUS'
```



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Exercise:

Write code that calculates the sum
of two numbers:

$$y = x_1 + x_2$$

Solution:

```
In [5]: x1 = 3
x2 = 4
y = x1 + x2

y
```

Out[5]: 7



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Exercise:

Write code that uses the function
sum from the **numpy** library:

Solution:

```
In [6]: import numpy as np  
np.sum([0, 1, 2, 3, 4])
```

```
Out[6]: 10
```

<https://numpy.org/doc/stable/reference/routines.math.html>

Learning point: importing libraries



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Exercise:

Write code that shows the difference between the functions **arange** and **linspace** from numpy.

Solution:

```
In [7]: np.arange(0, 11, 1)
```

```
Out[7]: array([ 0,  1,  2,  3,  4,  5,  6,  7,  8,  9, 10])
```

```
In [8]: np.linspace(0, 10, 11)
```

```
Out[8]: array([ 0.,  1.,  2.,  3.,  4.,  5.,  6.,  7.,  8.,  9., 10.])
```



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Exercise:

Write code that uses the *numpy* function *random.rand*.

Solution:

In [9]: `np.random.seed(123)`

`np.random.rand(10)`

Out[9]: `array([0.69646919, 0.28613933, 0.22685145, 0.55131477, 0.71946897, 0.42310646, 0.9807642 , 0.68482974, 0.4809319 , 0.39211752])`

Learning point: initialize seed