Python exercises 01

Some exercises include things we did not see in class.

If that's the case, don't worry! One of the most important things programmers do is *figure things out*.

You can use the Internet to look things up (and you should do that!) and you can ask your colleagues for help, as well!

Ex01

Print the concatenation of `"I"`, `"love"`, and `"pizza"`.

The result should look like this:

```
Ilovepizza
```

Ex02

Create a variable called `name` with your name and print the following sentence: `"Hello, my name is <name>"`.

If your name was Marta, your result would look like this:

```
Hello, my name is Marta
```

Ex03

Create a list with the values `[3, 5, 2, 10, 1]` and print the first 3 elements by slicing the list.

The result should look like this:

```
[3, 5, 2]
```

Ex04

Use the operator `==` to check if the strings `"hello"` and `"Hello"` are the same. Use `print` to print the result.

The result should look like this:

```
False
```

Ex05

Use the following two lists for the next exercise:

```
l1 = [5312, 21, 1230, 3213, 233, 22]
l2 = [9586, 7184, 5312, 3675, 7082,  636, 9501,  298, 21]
```

Write the code to answer the following questions:

1. Is the first element of `l1` equal to the third element of `l2`?
2. Is the second element of `l1` equal to the last element of `l2`?
3. What is the sum of the first 4 elements of `l1`?
4. What is the sum of the last 2 elements of `l2`?

Here are the expected results:

```
True
True
9776
319
```

Ex06

Reverse the following list:

```
mylist = [100, 200, 300, 400, 500]
```

Here is the expected result:

```
[500, 400, 300, 200, 100]
```

Ex07

Concatenate the following 2 lists:

```
l1 = [1, 2, 3]
l2 = [4, 5, 6]
```

Here is the expected result:

```
[1, 2, 3, 4, 5, 6]
```

Ex08

Find the value 20 in the following list and replace it with 200:

```
mylist = [5, 10, 1, 3, 7, 20, 100, 500, 42, 11]
```

Expected result:

```
[5, 10, 1, 3, 7, 200, 100, 500, 42, 11]
```

Ex09a

What is the output of the Python program shown below?

It is possible to just run the program and copy the output, but we strongly encourage you to not do this. You need to develop the ability to read code and understand what it will do. You will be tested on it.

```
z = 2
z = z**2**3 + 1
print(z)
```

Ex09b

What is the output of the Python program shown below?

It is possible to just run the program and copy the output, but we strongly encourage you to not do this. You need to develop the ability to read code and understand what it will do. You will be tested on it.

```
z = 2
z = z**2**3
print(z)
x = 6
x = x**2 + 6 - z // 10 * 2
print(x)
```

Ex10

Write Python code that creates three variables called `length`, `width`, and `height`, to store the dimensions of a 16.5 × 12.5 × 5 box.

Write additional code that calculates the volume of the box and calculates its surface area, storing each in a variable. Print the values of these variables.

Complete the code below by writing the correct expressions in place of the `...`:

```
length = 16.5
width = 12.5
height = 5

volume = ...
area = ...
```

```
print(volume)
print(area)
```

Expected output:

```
1031.25
702.5
```

Ex11

Write a single line of Python code that converts the temperature 64 from Celsius to Fahrenheit (find the formula online) and prints the value.

The output should just be the number that your code produces:

```
147.2
```

Ex12

Which of the following are valid variable names?

```
56abc
abc56
car-talk
car_talk
car talk
```

Ex13

Assuming you start with 100 Euros and earn 5% interest each year, how much much will you have at the end of one year, two years and three years? Write Python expressions to calculate these.

Expected results:

```
105.0
110.25
115.76250000000002
```

Ex14a

What is the output of the following Python code? Try to figure it out by hand before running the code.

```
x = 12
y = 7.4
x -= y
print(x, y)
```

Ex14b

What is the output of the following Python code? Try to figure it out by hand before running the code.

```
x = 12
y = 7.4
x -= y
y = y - x +7
z = 1
x = 2 + z
print(x, y)
```

Ex14c

What is the output of the following Python code? Try to figure it out by hand before running the code.

```
x = 12
y = 7.4
x -= y
y = y - x +7
z = 1
x = 2 + z
print(x*y)
x += x*y
print(x, y)
```