Warm_up_03_variables_and_expressions

January 11, 2025

1 Dynamic Modelling Course - TEP4290: Warm-up 3

The point of this exercise is for you to practice what you have learned in the recommended videos. - PY4E: https://www.py4e.com/lessons/memory - Whirwind tour of python: https://jakevdp.github.io/WhirlwindTourOfPython/02-basic-python-syntax.html - Whirwind tour of python: https://jakevdp.github.io/WhirlwindTourOfPython/04-semantics-operators.html

You will perform some basic operations that are designed to help you get comforable with Python. The exercise is not graded and will be discussed in the next exercises session in detail to clarify any doubts you may still have.

Good luck!

2 Tasks

Answer the questions or complete the tasks outlined in bold below, use the specific method described if applicable.

2.1 Variables, expressions, and statements

What is 7 to the power of 4?

```
[3]: x = 7 ** 4
     print(x)
```

```
2401
```

** Given the variables:**

```
planet = "Earth"
diameter = 12742
```

Print the following string: **

```
We live on planet Earth
Its diameter is 12742
```

```
[6]: planet = 'Earth'
     diameter = '12742'
```

```
[9]: print(f'We live on planet {planet}')
     print(f'Its diameter is {diameter}')
```

```
We live on planet Earth
Its diameter is 12742
```

What type is the variable "planet"

```
[10]: print(type(planet))
```

```
<class 'str'>
```

Calculate the speed of a car that can travel 200 km in 1,4h. Assign the value to a variable with a mnemonic name and print your result.

```
[31]: distance = 200
      time = 1.4
      speed = distance / time

      print(speed)
```

```
142.85714285714286
```

What type does this object have? Transform it an integer and assign it to a new variable. Print the new value and type of the variable.

```
[23]: speedint = int(speed)
      print(f'The value is {speedint} and the type is {type(speedint)}')
```

```
The value is 142 and the type is <class 'int'>
```

Now that you changed the type, are the two variables equal? Discuss why or why not by using a comment after the calculation with the symbol #

```
[33]: if speed == speedint:
          print(True)
      else:
          print(False)

      # The variables are not equal, because the integer value of the float is not␣
      ↪the same as the float value. The float value is higher because decimals are␣
      ↪included.
```

```
False
```

Check whether the rounded speed is smaller than the original value

```
[35]: if speedint < speed:
          print(True)
      else:
          print(False)
```

```
True
```

Asume that the speed is now **1.2 times faster.** Re-assign the value of the variable "speed" to the new value and print your results

```python
speed = speed * 1.2
print(speed)
```

```
205.7142857142857
```

3 Well done!