

Lesson 1

December 17, 2018

```
In [17]: v = "non"
```

```
In [22]: print (v)
```

non

```
In [20]: dir(v)
```

```
Out[20]: ['__add__',  
          '__class__',  
          '__contains__',  
          '__delattr__',  
          '__dir__',  
          '__doc__',  
          '__eq__',  
          '__format__',  
          '__ge__',  
          '__getattr__',  
          '__getitem__',  
          '__getnewargs__',  
          '__gt__',  
          '__hash__',  
          '__init__',  
          '__iter__',  
          '__le__',  
          '__len__',  
          '__lt__',  
          '__mod__',  
          '__mul__',  
          '__ne__',  
          '__new__',  
          '__reduce__',  
          '__reduce_ex__',  
          '__repr__',  
          '__rmod__',  
          '__rmul__',  
          '__setattr__']
```

```
'__sizeof__',  
'__str__',  
'__subclasshook__',  
'capitalize',  
'casefold',  
'center',  
'count',  
'encode',  
'endswith',  
'expandtabs',  
'find',  
'format',  
'format_map',  
'index',  
'isalnum',  
'isalpha',  
'isdecimal',  
'isdigit',  
'isidentifier',  
'islower',  
'isnumeric',  
'isprintable',  
'isspace',  
'istitle',  
'isupper',  
'join',  
'ljust',  
'lower',  
'lstrip',  
'maketrans',  
'partition',  
'replace',  
'rfind',  
'rindex',  
'rjust',  
'rpartition',  
'rsplit',  
'rstrip',  
'split',  
'splitlines',  
'startswith',  
'strip',  
'swapcase',  
'title',  
'translate',  
'upper',  
'zfill']
```

```
In [23]: v.upper()
```

```
Out[23]: 'NON'
```

```
In [25]: v.length() # ??? depende de cada lenguaje !!!
```

```
-----  
AttributeError                                Traceback (most recent call last)  
  
  <ipython-input-25-bfd8608cb898> in <module>()  
----> 1 v.length() # ??? depende de cada lenguaje !!!  
  
AttributeError: 'str' object has no attribute 'length'
```

```
In [ ]: v.__len__() # OO: tipado fuerte (strong typed)
```

```
In [ ]: len(v) # declarativo/procedural
```

```
In [27]: dir(v) # métodos disponibles para el tipo según la referencia
```

```
Out[27]: ['__add__',  
          '__class__',  
          '__contains__',  
          '__delattr__',  
          '__dir__',  
          '__doc__',  
          '__eq__',  
          '__format__',  
          '__ge__',  
          '__getattr__',  
          '__getitem__',  
          '__getnewargs__',  
          '__gt__',  
          '__hash__',  
          '__init__',  
          '__iter__',  
          '__le__',  
          '__len__',  
          '__lt__',  
          '__mod__',  
          '__mul__',  
          '__ne__',  
          '__new__',  
          '__reduce__',  
          '__reduce_ex__',
```

```
'__repr__',  
'__rmod__',  
'__rmul__',  
'__setattr__',  
'__sizeof__',  
'__str__',  
'__subclasshook__',  
'capitalize',  
'casefold',  
'center',  
'count',  
'encode',  
'endswith',  
'expandtabs',  
'find',  
'format',  
'format_map',  
'index',  
'isalnum',  
'isalpha',  
'isdecimal',  
'isdigit',  
'isidentifier',  
'islower',  
'isnumeric',  
'isprintable',  
'isspace',  
'istitle',  
'isupper',  
'join',  
'ljust',  
'lower',  
'lstrip',  
'maketrans',  
'partition',  
'replace',  
'rfind',  
'rindex',  
'rjust',  
'rpartition',  
'rsplit',  
'rstrip',  
'split',  
'splitlines',  
'startswith',  
'strip',  
'swapcase',  
'title',
```

```
    'translate',  
    'upper',  
    'zfill']
```

```
In [28]: type(v) # desde el lenguaje
```

```
Out[28]: str
```

```
In [29]: v.__class__ # desde el objeto
```

```
Out[29]: str
```

```
In [39]: v=3 # OO: tipado dinámico (dynamically typed)
```

```
In [33]: v
```

```
Out[33]: 3
```

```
In [36]: dir(v)
```

```
Out[36]: ['__abs__',  
          '__add__',  
          '__and__',  
          '__bool__',  
          '__ceil__',  
          '__class__',  
          '__delattr__',  
          '__dir__',  
          '__divmod__',  
          '__doc__',  
          '__eq__',  
          '__float__',  
          '__floor__',  
          '__floordiv__',  
          '__format__',  
          '__ge__',  
          '__getattr__',  
          '__getnewargs__',  
          '__gt__',  
          '__hash__',  
          '__index__',  
          '__init__',  
          '__int__',  
          '__invert__',  
          '__le__',  
          '__lshift__',  
          '__lt__',  
          '__mod__',  
          '__mul__',
```

```
'__ne__',
'__neg__',
'__new__',
'__or__',
'__pos__',
'__pow__',
'__radd__',
'__rand__',
'__rdivmod__',
'__reduce__',
'__reduce_ex__',
'__repr__',
'__rfloordiv__',
'__rlshift__',
'__rmod__',
'__rmul__',
'__ror__',
'__round__',
'__rpow__',
'__rrshift__',
'__rshift__',
'__rsub__',
'__rtruediv__',
'__rxor__',
'__setattr__',
'__sizeof__',
'__str__',
'__sub__',
'__subclasshook__',
'__truediv__',
'__trunc__',
'__xor__',
'bit_length',
'conjugate',
'denominator',
'from_bytes',
'imag',
'numerator',
'real',
'to_bytes']
```

```
In [37]: type(v)
```

```
Out[37]: int
```

```
In [38]: v.__class__
```

```
Out[38]: int
```