

Pydon'ts

Write elegant Python code

by Rodrigo Girão Serrão

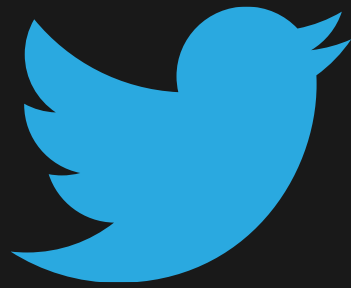
EuroPython 2021

About me

Rodrigo Girão Serrão

- Formal education: maths
- Writing Python for 9 years
- Training/teaching:
 - APL (Dyalog Ltd.)
 - Python, maths, etc (mathspp.com)





@mathsppblog

Pydon'ts

Write elegant Python code

Pydon'ts

“Elegance is not a dispensable luxury but a factor that decides between success and failure.”

— Edsger Dijkstra,

“Selected Writings on Computing: A Personal Perspective”, p.347

Task

```
>>> f("abcdefg")  
'aBcDeFg'
```

```
>>> f("a cd g")  
'a cD g'
```

Starting point

```
def myfunc(a):  
    empty=[]  
    for i in range(len(a)):  
        if i%2==0:  
            empty.append(a[i].upper())  
        else:  
            empty.append(a[i].lower())  
  
    return "".join(empty)
```

Destination

```
def alternate_casing(text):  
    return "".join([  
        char.lower() if idx % 2 else char.upper()  
        for idx, char in enumerate(text)  
    ])
```


Code style matters

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```
def myfunc(a):  
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    return "".join(letters)
```

Enumerate me

Enumerate me

Traverse my_list:

```
for idx in range(len(my_list)):
    print(my_list[idx])
    ...
```

Enumerate me

Traverse my_list:

```
for elem in my_list:  
    print(elem)  
    ...
```

Enumerate me

Traverse `my_list` w/ indices:

```
for idx in range(len(my_list)):
    elem = my_list[idx]
    print(idx, elem)
    ...
```

Enumerate me

Traverse `my_list` w/ indices:

```
for idx, elem in enumerate(my_list):  
    print(idx, elem)  
    ...
```

Enumerate me

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    for idx in range(len(text)):  
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    return "".join(letters)
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Nest sparingly

Nest sparingly

```
>>> import this
```

```
The Zen of Python, by Tim Peters
```

```
Beautiful is better than ugly.
```

```
Explicit is better than implicit.
```

```
Simple is better than complex.
```

```
Complex is better than complicated.
```

```
Flat is better than nested.
```

```
Sparse is better than dense.
```

```
Readability counts.
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Special cases aren't special enough to break the rules.
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Although practicality beats purity.
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Errors should never pass silently.
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Unless explicitly silenced.
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In the face of ambiguity, refuse the temptation to guess.
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Readability counts.
Special cases aren't special enough to break the rules.
Although practicality beats purity.
Errors should never pass silently.
Unless explicitly silenced.
In the face of ambiguity, refuse the temptation to guess.
```

Nest sparingly

```
try:
    do_some_things()
    this_may_error()
    do_other_things()
except IndexError:
    print("Whoopsie!")
    correct_mistake()
```

Nest sparingly

```
do_some_things()  
try:  
    this_may_error()  
except IndexError:  
    print("Whoopsie!")  
    correct_mistake()  
do_other_things()
```


Nest sparingly

```
with open(filepath, "r") as f:  
    contents = f.read()  
    process_contents(contents)
```

Nest sparingly

```
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    contents = f.read()  
process_contents(contents)
```

Nest sparingly

Nesting introduces semantic dependencies.
The less, the better.

Nest sparingly

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        letters.append(capitalised)  
  
    return "".join(letters)
```


Truthy, Falsy, and bool

Truthy, Falsy, and bool

```
>>> my_list = [1, 3, 73]
>>> if len(my_list) > 0:
...     print(my_list[-1])
... else:
...     print("No last element ;(")
...
73
```

Truthy, Falsy, and bool

```
>>> my_list = [1, 3, 73]
>>> if 3 > 0:
...     print(my_list[-1])
... else:
...     print("No last element ;(")
...
73
```

Truthy, Falsy, and bool

```
>>> my_list = [1, 3, 73]
>>> if True:
...     print(my_list[-1])
... else:
...     print("No last element ;(")
...
73
```

Truthy, Falsy, and bool

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>>> my_list = [1, 3, 73]
>>> if len(my_list) > 0:
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...     print("No last element ;(")
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73
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Truthy, Falsy, and bool

```
>>> my_list = [1, 3, 73]
>>> if my_list:
...     print(my_list[-1])
... else:
...     print("No last element ;(")
...
73
```

Truthy, Falsy, and bool

```
>>> my_list = [1, 3, 73]
>>> if bool(my_list):
...     print(my_list[-1])
... else:
...     print("No last element ;(")
...
73
```

Truthy, Falsy, and bool

```
>>> my_list = [1, 3, 73]
>>> if True:
...     print(my_list[-1])
... else:
...     print("No last element ;(")
...
73
```


Truthy, Falsy, and bool

0

0.0

None

""

[]

{}

tuple()

set()

Truthy, Falsy, and bool

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Conditional expressions

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```


Conditional expressions

```
if idx % 2:  
    capitalised = char.lower()  
else:  
    capitalised = char.upper()  
letters.append(capitalised)
```

Conditional expressions

```
capitalised = char.lower() if idx % 2 else char.upper()  
letters.append(capitalised)
```

Conditional expressions

```
letters.append(  
    char.lower() if idx % 2 else char.upper()  
)
```

Conditional expressions

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        )  
  
    return "".join(letters)
```

List comprehensions

List comprehensions

```
my_list = []  
for elem in iter:  
    my_list.append(func(elem))
```

List comprehensions

```
my_list = [func(elem) for elem in iter]
```

List comprehensions

```
def alternate_casing(text):  
    letters = []  
    for idx, char in enumerate(text):  
        letters.append(  
            char.lower() if idx % 2 else char.upper()  
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References

- Pydon'ts:

- Bite-sized refactoring, <https://mathspp.com/blog/pydons/bite-sized-refactoring>
- Does elegance matter, <https://mathspp.com/blog/pydons/does-elegance-matter>
- Code style matters, <https://mathspp.com/blog/pydons/code-style-matters>
- Enumerate me, <https://mathspp.com/blog/pydons/enumerate-me>
- Truthy, Falsy, and bool, <https://mathspp.com/blog/pydons/truthy-falsy-and-bool>

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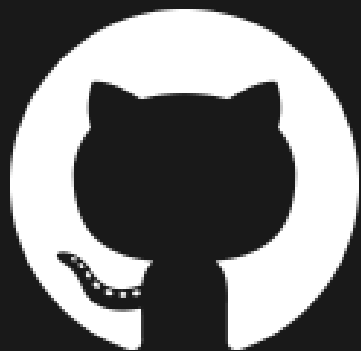
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