

Lesser known gems of the standard library

The ?? and ??s of “batteries included”

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About me

- ▶ My name is Kenneth Nielsen and I work at CINF
- ▶ Free and open source software (FOSS) enthusiast
- ▶ Use way too much time on python conference presentations on youtube

Slides and examples

```
git clone https://github.com/KennethNielsen/presentations.git
```

```
https://github.com/KennethNielsen/presentations
```

```
http://bit.ly/1Fc1zDR
```

Outline

A peak into some of the (maybe) lesser known gems of the standard library

- ▶ Convenient containers (... and more)
 - ▶ defaultdict, Counter
- ▶ Special operators for key functions (get rid of lambdas)
 - ▶ itemgetter, attrgetter
- ▶ Function tools
 - ▶ partial
- ▶ Part way between anonymous data and full classes
 - ▶ namedtuple
- ▶ Random stuff ;)
 - ▶ choice

defaultdict

```
from collections import defaultdict
groups = defaultdict(default_callable)
```

A dictionary that will fill in values for unknown keys with defaults supplied by a callable

- ▶ Useful e.g. for grouping, where you would otherwise have to write annoying first-item-init code
- ▶ Supply a callable when creating it, that will be called to ask for a default value

LIVE! Example `ex1_default_dict.py`

Counter

```
from collections import Counter  
counter = Counter()
```

A default dict with default value 0 (and some special counter relevant math)

- ▶ Useful for counting!
- ▶ Can be added and subtracted
- ▶ Flattens out at 0 when subtracted

LIVE! Example `ex2_counter.py`

itemgetter and attrgetter

```
from operator import itemgetter, attrgetter
```

Gives you a function that returns an element from an iterable or dict or a specific attribute from an object

- ▶ **EXTREMELY** usefull as key functions for sort, sorted, min and max ...
- ▶ ... especially because they make it possible to get rid of those pesky unreadable lambda expressions

LIVE! Example `ex3_itemgetter_attrgetter.py`

partial

```
from functools import partial
```

From original functions create new ones, where certain values in the original functions calls are already filled out

- ▶ To call the same function a lot of times with one specific argument
- ▶ To create custom functions that calls others with an argument filled out

LIVE! Example `ex4_partial.py`

LIVE! Example `ex5_partial_valve_control.py`

namedtuple

```
from collections import namedtuple
```

Named tuples can be used to give your tuple like data structures a name and make it possible to access its values by names instead of index WITHOUT writing a class by hand for it

- ▶ Usefull for naming data structures
- ▶ Usefull for getting . access instead of []

LIVE! Example `ex6_namedtuple.py`

choise

```
from random import choice
```

Pick an element from an iterable at random.

LIVE! Example `ex7_choice.py`

Summary

- ▶ The standard library has lots of little tools
- ▶ It is worth it to look for them, when needing them instead of rolling your own