Commodity Documentation

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Contents

`commodity` is a library of recurrent required utilities for Python programmers.

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CHAPTER 1

deco

commodity.deco.**add_attr**(*name*, *value*)

Set the given function attribute:

```
>>> @add_attr('timeout', 4)
... def func(args):
...     pass
...
>>> func.timeout
4
```

commodity.deco.**handle_exception**(*exception*, *handler*)

Add and exception handler with decorator

```
>>> import logging, math
>>> @handle_exception(ValueError, logging.error)
... def silent_sqrt(value):
...     return math.sqrt(value)
>>> silent_sqrt(-1)
ERROR:root:math domain error
```

commodity.deco.**suppress_errors**(*func=None, default=None, log_func=<function debug>, errors=[<type 'exceptions.Exception'>]*)

Decorator that avoids to create try/excepts only to avoid valid errors. It can return a default value and ignore only some exceptions.

Example: It will return the file content or the empty string if it doesn't exists:

```
>>> @suppress_errors(errors=[IOError], default='')
... def read_file(filename):
...     with file(filename) as f:
...         return f.read()
```

```
>>> read_file('/some/not/exists')
''
```

Parameters

- **func** – Function to be called.
- **default** – Default value to be returned if any of the exceptions are launched.
- **log_func** – The log function. logging.debug by default. It is a good idea to use it to avoid 'catch pokemon' problems.
- **errors** – list of allowed Exceptions. It takes in mind inheritance.

commodity.deco.**tag**(*name*)

Add boolean attributes to functions:

```
>>> @tag('hidden')
... def func(args):
...     pass
...
>>> func.hidden
True
```

CHAPTER 2

args

Creating a powerful argument parser is very easy:

```
from commodity.args import parser, add_argument, args

add_argument('-f', '--foo', help='foo argument')
add_argument('-v', '--verbose', action='store_true', help='be verbose')

parser.parse_args('--foo 3'.split())

assert args.foo == 3
```

And it supports config files. That requires argument specs (`config.specs`):

```
[ui]
foo = integer(default=0)
verbose = boolean(default=False)
```

...the user config file (`.app.config`):

```
[ui]
foo = 4
verbose = True
```

...and the code:

```
from commodity.args import parser, add_argument, args

add_argument('-f', '--foo', help='foo argument')
add_argument('-v', '--verbose', action='store_true', help='be verbose')

parser.set_specs("config.specs")
parser.load_config("/etc/app.config")
parser.load_config("/home/user/.app.config")
parser.load_config("by-dir.config")
parser.parse_args()

assert args.foo == 4
```

CHAPTER 3

log

class commodity.log.**CallerData**(*depth=0*)

Get info about caller function, file, line and statement

```
>>> def a():
...     return b()
>>>
>>> def b():
...     print CallerData()
>>>
>>> a()
File "<stdin>", line 2, in a()
  return b()
```

class commodity.log.**CapitalLoggingFormatter**(*fmt=None*, *datefmt=None*)

Define variable "levelcapital" for message formating. You can do things like: [EE] foo bar

```
>>> formatter = CapitalLoggingFormatter('[%(levelcapital)s] %(message)s')
>>> console = logging.StreamHandler()
>>> console.setFormatter(formatter)
```

class commodity.log.**NullHandler**(*level=0*)

class commodity.log.**PrefixLogger**(*logger*, *prefix*)

class commodity.log.**UniqueFilter**(*name=''*)

Log messages are allowed through just once. The 'message' includes substitutions, but is not formatted by the handler. If it were, then practically all messages would be unique!

from: http://code.activestate.com/recipes/412552-using-the-logging-module/

CHAPTER 4

mail

CHAPTER 5

OS

CHAPTER 6

path

commodity.path.**abs_dirname**(*path*)

Return absolute path for the directory containing *path*

```
>>> abs_dirname('test/some.py')
'/home/john/devel/test'
```

commodity.path.**child_relpath**(*path*, *start='.'*)

Convert a path to relative to the current directory if possible

```
>>> os.getcwd()
/home/user
>>> child_relpath('/home/user/doc/last')
'doc/last'
>>> child_relpath('/usr/share/doc')
'/usr/share/doc'
```

commodity.path.**find_in_ancestors**(*fname*, *path*)

Search 'fname' file in the given 'path' and its ancestors

```
>>> find_in_ancestors('passwd', '/etc/network')
'/etc'
>>> find_in_ancestors('passwd', '/etc/network/interfaces')
'/etc'
```

commodity.path.**get_parent**(*path*)

```
>>> get_parent('/usr/share/doc')
'/usr/share'
```

commodity.path.**get_project_dir**(*fpath*)

commodity.path.**resolve_path**(*fname*, *paths*, *find_all=False*)

Search 'fname' in the given paths and return the first full path that has the file. If 'find_all' is True it returns all matching paths. It always returns a list.

```
>>> resolve_path('config', ['/home/user/brook', '/etc/brook'])
['/etc/brook/config']
```

commodity.path.**resolve_path_ancestors**(*fname*, *path*, *find_all=False*)

Search 'fname' in the given path and its ancestors. It returns the first full path that has the file. If 'find_all' is True it returns all matching paths. Always returns a list

```
    >>> resolve_path_ancestors('passwd', '/etc/network')
    '/etc/passwd'
    >>> resolve_path_ancestors('passwd', '/etc/network/interfaces')
    '/etc/passwd'
```

CHAPTER 7

pattern

class commodity.pattern.**Bunch**(**args*, ***kargs*)
It provides dict keys as attributes and viceversa

```
>>> data = dict(ccc=2)
>>> bunch = Bunch(data)
>>> bunch.ccc
2
>>> bunch.ddd = 3
>>> bunch['ddd']
3
>>> bunch['eee'] = 4
>>> bunch.eee
4
```

class commodity.pattern.**DummyLogger**

class commodity.pattern.**Flyweight**(*name*, *bases*, *dct*)
Flyweight dessign pattern (for identical objects) as metaclass

```
>>> class Sample(object):
...     __metaclass__ = Flyweight
```

class commodity.pattern.**MetaBunch**(*dct=None*)
A bunch of bunches. It allows to recursively access keys as attributes and viceversa. It may decorate any mapping type.

```
>>> b = MetaBunch()
>>> b['aaa'] = {'bbb': 1}
>>> b.aaa.bbb
1
>>> b.aaa.ccc = 2
>>> b['aaa']['ccc']
2
```

class commodity.pattern.**NestedBunch**(**args*, ***kargs*)
Bunch with recursive fallback in other bunch (its parent)

```
>>> a = NestedBunch()
>>> a.foo = 1
>>> a2 = a.new_layer()
>>> a2.bar = 2
>>> a2.foo
1
```

```
>>> a2.keys()
['foo', 'bar']
```

```
>>> b = NestedBunch()
>>> b.foo = 1
>>> b2 = b.new_layer()
>>> b2.foo
1
>>> b2['foo'] = 5000
>>> b2.foo
5000
>>> b['foo']
1
```

```
>>> c = NestedBunch()
>>> c.foo = 1
>>> c2 = c.new_layer().new_layer()
>>> c2.foo
1
```

class commodity.pattern.**Observable**

class commodity.pattern.**TemplateBunch**

A Bunch automatically templated with its own content

```
>>> t = TemplateBunch()
>>> t.name = "Bob"
>>> t.greeting = "Hi $name!"
>>> t.greeting
"Hi Bob!"
>>> t.person = "$name's sister"
>>> t.greeting = "Hi $person!"
>>> t.person
"Bob's sister"
>>> t.greeting
"Hi Bob's sister"
```

commodity.pattern.**make_exception**(*name*, *message=''*)

commodity.pattern.**memoized**(*method_or_arg_spec=None*, *ignore=None*)

Memoized decorator for functions and methods, including classmethods, staticmethods and properties

```
>>> import random
>>>
>>> @memoized
... def get_identifier(obj):
...     return random.randrange(1000)
...
>>> n1 = get_identifier("hi")
>>> n2 = get_identifier("hi")
>>> assert n1 == n2
```

It allows to ignore some arguments in memoization, so different values for those arguments DO NOT implies new true invocations:

```
>>> @memoized(ignore=['b'])
... def gen_number(a, b):
...     return random.randrange(1000)
...
>>> n1 = gen_number(1, 2)
```

```
>>> n2 = gen_number(1, 3)
>>> print n1, n2
>>> assert n1 == n2
```

- http://pko.ch/2008/08/22/memoization-in-python-easier-than-what-it-should-be/
- http://micheles.googlecode.com/hg/decorator/documentation.html

class commodity.pattern.**memoizedproperty**(*method*)

Memoized properties

```
>>> import random
>>> class A:
...     @memoizedproperty
...     def a_property(self):
...         return random.randrange(1000)
...
>>> a1 = A()
>>> v1 = a1.a_property
>>> v2 = a1.a_property
>>> assert v1 == v2
```

CHAPTER 8

str

class commodity.str_.**ASCII_TreeRender**
Draws an ASCII-art tree just with ASCII characters. norm_brother = '+-'

class commodity.str_.**Printable**
Class mixin that provides a __str__ method from the __unicode__ method.

class commodity.str_.**TemplateFile**(*template*)
Render a template (given as string or input file) and renders it with a dict over a string, given filename or tempfile.

```
>>> t = TemplateFile('$who likes $what')
>>> t.render(dict(who='kate', what='rice'))
'kate likes rice'
```

class commodity.str_.**TreeRender**

class commodity.str_.**UTF_TreeRender**
Draws an ASCII art tree with UTF characters.

commodity.str_.**add_prefix**(*prefix*, *items*)
Add a common prefix to all strings of a list:

```
>>> add_prefix('pre-', ['black', 'red', 'orange'])
['pre-black', 'pre-red', 'pre-orange']
```

commodity.str_.**convert_to_string**(*obj*, *encoding='utf-8'*)
Returns an encoded string from unicode or string.

CHAPTER 9

testing

CHAPTER 10

thread

class commodity.thread_.**ActualReaderThread**(*fdin*, *fdout*)
A thread that read from an actual file handler and write to an object that just has the write() method.

class commodity.thread_.**DummyReaderThread**

commodity.thread_.**ReaderThread**(*fin*, *fout*)

class commodity.thread_.**SimpleThreadPool**(*num_workers*)
A generic and simple thread pool. Function return value are received by means of callbacks.

```
>>> import math
>>>
>>> result = []
>>> pool = SimpleThreadPool(4)
>>> pool.add(math.pow, (1, 2), callback=result.append)
>>> pool.join()
```

Also implements a parallel `map()` for an argument sequence for a function executing each on a different thread:

```
>>> pool = SimpleThreadPool(4)
>>> pool.map(math.sqrt, ((2, 4, 5, 9)))
(1.4142135623730951, 2.0, 2.23606797749979, 3.0)
```

```
>>> pool.map(math.pow, [2, 3, 3], [2, 2, 4])
(4, 9, 81)
```

class commodity.thread_.**ThreadFunc**(*target*, **args*, ***kargs*)
Execute given function in a new thread. It provides return value (or exception) as object atribbutes.

```
>>> import math
```

```
>>> tf = ThreadFunc(math.sin, 8)
>>> tf.join()
>>> tf.result
0.9893582466233818
```

```
>>> tf = ThreadFunc(math.sqrt, -1)
>>> tf.join()
>>> tf.exception
>>> ValueError('math domain error')
```

class commodity.thread_.**WorkerGroup**(*num_workers*)
A group of dedicated workers.

```
>>> import math
>>>
>>> results = []
>>> group = WorkerGroup(4)
>>> w1 = group.get_worker("some unique value")
>>> w1.add(math.square, (9,), callback=results.append)
>>> group.join()
>>>
>>> print results
[81]
```

commodity.thread_.**start_new_thread**(*target*, **args*, ***kargs*)

Execute given function in a new thread. It returns a *ThreadFunc* object.

CHAPTER 11

type

commodity.type_.**checked_type**(*cls*, *val*)

If 'val' is a instance of 'cls' returns 'val'. Otherwise raise TypeError.

```
>>> checked_type(int, 3)
3
>>> checked_type((str, int), '4')
'4'
>>> checked_type(str, 5)
TypeError: str is required, not int: '5'.
```

commodity.type_.**module_to_dict**(*module*)

Return module global vars as a dict

CHAPTER 12

Indices and tables

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