kutils Documentation

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These are various data structures and tools that I think are useful and want to re-use across projects.

CHAPTER 1

Introduction

Most programmers will have their own collection of useful code they'd like to reuse across projects. This is mine. It follows in spirit with my Lisp kutils package and the Go analogue. Note that these three libraries don't really have much overlap, and reflect the things I tend to use each programming language for.

CHAPTER 2

Dictionaries

There are a few utility dictionaries available. All of them inherit from the base `dict` class, and can be used as drop-ins for the standard `dict` type. There are a few "primitive" base types that are then composed to more complex types. To use these types, `import kutils.dicts`.

- `AttrDict`: this dictionary provides access to the keys as attributes.
- `NoneDict`: this dictionary returns `None` for non-existent keys. This means it will not throw a `KeyError` for top-level keys; note that nested dictionaries may not be ‘NoneDict‘s.
- `StrDict`: this dictionary returns an empty string for non-existent keys.
- `DictDict`: this dictionary returns an empty `StrDict` for non-existent keys. This is mostly useful for values that are nested dictionaries of keys.
- `AttrNoneDict`: this is a composition of the `AttrDict` and the `NoneDict`: it provides access to its keys as attributes, and returns `None` for missing keys or attributes; this means missing top-level keys and attributes will not throw `KeyError` or `AttributeError`.
- `AttrDictDict`: this is a composition of the `AttrDict` and `DictDict`: it provides access to its keys as attributes, and returns an empty `StrDict` for missing keys or attributes; this means missing top-level keys and attributes will not throw `KeyError` or `AttributeError`.

CHAPTER 3

API reference: Dictionaries

The `kutils.dicts` module provides several utility dictionaries. dicts contains a number of special-case dictionaries.

class `kutils.dicts.`**`AttrDict`**(**args*, ***kwargs*)

AttrDict represents a dictionary where the keys are represented as attributes.

```
>>> d = kd.AttrDict(foo='bar')
>>> d.foo
'bar'
>>> d['foo']
'bar'
```

class `kutils.dicts.`**`AttrDictDict`**(**args*, ***kwargs*)

AttrDictDict is a dictionary that returns an empty StrDict if a key is unavailable. This is meant for a dictionary of dictionaries of string values.

```
>>> d = kd.AttrDictDict()
>>> d.foo
{}
>>> d['foo']
{}
>>> d.foo.bar
''
>>> d['foo']['bar']
''
```

class `kutils.dicts.`**`AttrNoneDict`**(**args*, ***kwargs*)

AttrNoneDict returns an AttrDict that returns None if a key isn't present.

```
>>> d = kd.AttrNoneDict(foo='bar')
>>> d.foo
'bar'
>>> d['foo']
'bar'
>>> d.bar is None
```

```
True
>>> d['bar'] is None
True
```

class `kutils.dicts.`**`AttrStrDict`**(**args*, ***kwargs*)

AttrStrDict returns an AttrDict that returns an empty string if a key isn't present.

```
>>> d = kd.AttrStrDict(foo='bar')
>>> d.foo
'bar'
>>> d['foo']
'bar'
>>> d.bar
''
>>> d['bar']
''
```

class `kutils.dicts.`**`DictDict`**(**args*, ***kwargs*)

DictDict is a dictionary that returns an empty AttrStrDict if a key is unavailable. This is meant for a dictionary of dictionaries of string values.

```
>>> d = kd.DictDict()
>>> d['foo']
{}
>>> type(d['foo'])
<class 'kutils.dicts.AttrStrDict'>
>>> d.foo.bar
''
```

class `kutils.dicts.`**`NoneDict`**(**args*, ***kwargs*)

NoneDict is a dictionary that returns `None` if a key is unavailable.

```
>>> d = kd.NoneDict(foo='bar')
>>> d['foo']
'bar'
>>> d['baz'] is None
True
```

class `kutils.dicts.`**`StrDict`**(**args*, ***kwargs*)

StrDict is a dictionary that returns an empty string if a key is unavailable.

```
>>> d = kd.StrDict(foo='bar')
>>> d['foo']
'bar'
>>> d['baz']
''
```

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