
printree
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Tree-like formatting for arbitrary python data structures.

**CHAPTER
ONE**

INSTALATION

```
pip install printtree
```

CHAPTER TWO

USAGE

`printtree` aims to be similar to pretty print (`pprint`) with a format inspired by the `tree` command:

```
>>> from printtree import ptree, ftree
>>> ptree({"x": len, 42})  # will print to the output console
└── 0: x
    ├── 1: <built-in function len>
    └── 2: 42
>>> ftree({"x": len, 42})  # will return a string representation
'\n└── 0: x\n    └── 1: <built-in function len>\n        └── 2: 42'
```

Instances of `abc.Iterable` (with the exception of `str` & `bytes`) will be represented as branches. All other objects will be considered leaf nodes:

```
>>> from printtree import ptree
>>> dct = {
...     "foo": [],
...     True: {
...         "uno": {"ABC", "XYZ"},
...         "dos": r"B:\newline\tab\like.ext",
...         "tres": {
...             "leaf": b"bytes",
...             "numbers": (42, -17, 0.01)
...         },
...     },
...     ("tuple", "as", "key"):
...         {"multi\nlined\n\ttabbed key": "multi\nline\n\ttabbed value"}
...     }
>>> dct["recursion"] = [1, dct, 2]
>>> ptree(dct)

└── foo
└── True
    └── uno
        ├── 0: XYZ
        └── 1: ABC
    └── dos: B:\newline\tab\like.ext
    └── tres
        ├── leaf: b'bytes'
        └── numbers
            ├── 0: 42
            ├── 1: -17
            └── 2: 0.01
└── ('tuple', 'as', 'key')
```

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```
└── multi
    └── lined
        tabbed key: multi
        line
        tabbed value
recursion
└── 0: 1
└── 1: <Recursion on dict with id=2414949505984>
└── 2: 2
```

The annotated and depth arguments modify verbosity of the output when creating the tree representation:

```
>>> ptree(dct, depth=2, annotated=True)
→ dict[items=4]
└── foo → list[empty]
└── True → dict[items=3]
    └── uno → set[items=2] [...]
    └── dos: B:\newline\tab\like.ext
    └── tres → dict[items=2] [...]
└── ('tuple', 'as', 'key') → dict[items=1]
    └── multi
        └── lined
            tabbed key: multi
            line
            tabbed value
recursion → list[items=3]
└── 0: 1
└── 1: <Recursion on dict with id=2414949505984>
└── 2: 2
```

CUSTOMIZING FORMATTING

TreePrinter subclasses can change each of the string representations of the tree. The subclass AsciiPrinter is provided as an example:

```
>>> from printtree import AsciiPrinter
>>> obj = [42, {"foo": (True, False)}]
>>> AsciiPrinter(annotated=True).ptree(obj)
. -> list[items=2]
| -- 0: 42
`-- 1 -> dict[items=1]
    `-- foo -> tuple[items=2]
        |-- 0: True
        `-- 1: False
```

The main members to override are:

- ROOT
- EDGE
- BRANCH_NEXT
- BRANCH_LAST
- ARROW

The level attribute will be automatically set on the printer instance to indicate the current depth in the traversal of the tree.

To print each branch level with a different color, something like the following could be implemented:

```
from printtree import TreePrinter

class ColoredTree(TreePrinter):
    colors = {
        0: '\033[31m',  # red
        1: '\033[32m',  # green
        2: '\033[33m',  # yellow
        3: '\033[36m',  # cyan
        4: '\033[35m',  # magenta
    }
    _RESET = '\033[0m'

    def __getattribute__(self, item):
        if item in ("EDGE", "BRANCH_NEXT", "BRANCH_LAST"):
            return f'{self.color}{getattr(super(), item)}{self._RESET}'
        return super().__getattribute__(item)
```

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```
@property
def color(self):
    return self.colors[self.level % len(self.colors)]

@property
def ROOT(self): # for root (level 0), prefer the color of the children (level 1)
    return f'{self.colors[1]}{super().ROOT}{self._RESET}'

multiline = {"foo": {False: {"AB\nCD": "xy", 42:len}, True: []}, ("bar",): []}
dct = {"A": multiline, "B": (multiline,), "C\nD": "x\ny", "F": (1, "2")}

import os
os.system("") # required on windows only

ColoredTree().ptree(dct)
```

Which outputs:

CHAPTER FOUR

MODULE CONTENTS

class `printtree.AsciiPrinter`(*depth=None, annotated=False*)

A printer that uses ASCII characters only.

class `printtree.TreePrinter`(*depth=None, annotated=False*)

Default printer for `printtree`.

Uses unicode characters.

property `depth`

Maximum depth to traverse while creating the tree representation.

Return type `int`

`printtree.ftree`(*obj, depth=None, annotated=False*)

Return the formatted tree representation of the given object data structure as a string. Arguments are same as `ptree`

Return type `str`

`printtree.ptree`(*obj, depth=None, annotated=False*)

Print a tree-like representation of the given object data structure.

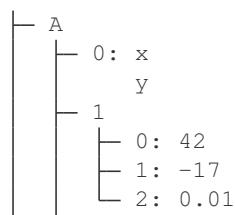
`collections.abc.Iterable` instances will be branches, with the exception of `str` and `bytes`. All other objects will be leaves.

Parameters

- **depth** (`Optional[int]`) – If the data structure being printed is too deep, the next contained level is replaced by [...]. By default, there is no constraint on the depth of the objects being formatted.
- **annotated** (`bool`) – Whether or not to include annotations for branches, like the object type and amount of children.

Examples:

```
>>> dct = {"A": {"x\ny": (42, -17, 0.01), True}, "B": 42}
>>> ptree(dct)
```



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```
└ 2: True  
B: 42
```

```
>>> ptree(dct, annotated=True, depth=2)  
→ dict[items=2]  
└ A → set[items=3]  
   └ 0: x  
   └ Y  
   └ 1 → tuple[items=3] [...]  
   └ 2: True  
└ B: 42
```

Return type None

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