

Outils Python & C++

Université Toulouse Paul Sabatier - KEAT9AA1

2024-09-02

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Available at

**[https://homepages.laas.fr/gsaurel/teach/
2024-2025/M2_ISTR/3-outils.pdf](https://homepages.laas.fr/gsaurel/teach/2024-2025/M2_ISTR/3-outils.pdf)**

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Source

**<https://gitlab.laas.fr/gsaurel/teach> :
2024-2025/M2_ISTR/3-outils.md**

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Vous

- hauteurs
- position
- distances

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- position
- distances

Adaptez votre environnement



Style

Code is read much more often than it is written

— Guido Van Rossum

`https://peps.python.org/pep-0008/`

`print ( "hello" )`

<https://peps.python.org/pep-0008/>

```
print ( "hello" )
```

```
↳$ flake8 hello-spaces.py
```

```
hello-spaces.py:1:6: E211 whitespace before '('
```

```
hello-spaces.py:1:8: E201 whitespace after '('
```

```
hello-spaces.py:1:16: E202 whitespace before ')'
```

`https://github.com/psf/black`

`↳$ black hello-spaces.py`
`reformatted hello-spaces.py`

`All done!`

`1 file reformatted.`

`https://github.com/psf/black`

`↳$ black hello-spaces.py`
reformatted hello-spaces.py

All done!

1 file reformatted.

`-print ( "hello" )`
`+print("hello")`

<https://clang.llvm.org/docs/ClangFormat.html>

```
└>$ clang-format -i QGVScene.cpp
```

```
-for( auto node : _nodes ) {  
-  node->update_layout();  
-}  
+for (auto *node : _nodes) node->update_layout();
```

Analyse Statique

```
def add(a: int, b: int) -> int:
    """Performs addition on integers.

    >>> add(3, 4)
    7
    """
    return a + b


if __name__ == "__main__":
    import sys

    print(add(sys.argv[1], sys.argv[2]))
```



```
└─$ python add.py 3 4  
34
```

```
└─$ python add.py 3 4
```

```
34
```

```
└─$ mypy add.py
```

```
add.py:13: error: Argument 1 to "add" has incompatible  
                    type "str"; expected "int"
```

```
add.py:13: error: Argument 2 to "add" has incompatible  
                    type "str"; expected "int"
```

```
Found 2 errors in 1 file (checked 1 source file)
```

<https://github.com/asottile/pyupgrade>

```
class C(Base):  
    def f(self):  
-         super(C, self).f()  
+         super().f()
```

<https://github.com/asottile/pyupgrade>

```
class C(Base):  
    def f(self):  
-         super(C, self).f()  
+         super().f()
```

En C++: **clang-tidy**

Méta

Bring your own ;)

<https://github.com/pre-commit/pre-commit>

```
└─>$ cat .pre-commit-config.yaml
```

repos:

- **repo:** <https://github.com/psf/black>
rev: 22.8.0

hooks:

- **id:** black
- **repo:** <https://github.com/pre-commit/mirrors-clang-format>
rev: v14.0.6
hooks:
 - **id:** clang-format

<https://github.com/pre-commit/pre-commit>

```
↳ $ pre-commit run -a
```


<https://github.com/pre-commit/pre-commit>

```
└>$ pre-commit run -a
```

```
└>$ pre-commit install
```

<https://pre-commit.ci/>

Rust

- black + isort → ruff format
- flake8 + pyupgrade → ruff check

■ `pip` → `uv`