Яндекс

Субъективные новости из мира питона

Андрей Гейн, Яндекс.Облако

Субъективные новости? WTF?!

О чём успеем поговорить

Субъективно интересное из **Python 3.8**
Субъективно полезное из **Python 3.9**
Субъективно обидно отвергнутые **PEP**
Субъективно бесполезное из **Django 3.1**
Субъективно забавное из **новых проектов**

https://docs.python.org/3/whatsnew/3.8.html
https://pythonz.net/versions/named/3.8/

Python 3.8 — октябрь 2019

- Positional-only arguments

```
def function(a, b, /, c, d, *, e, f):
    print(a, b, c, d, e, f)
```

https://www.python.org/dev/peps/pep-0570/

Python 3.8 — октябрь 2019

- Positional-only arguments

```
def function(a, b, /, c, d, *, e, f):
    print(a, b, c, d, e, f)


function(10, 20, 30, d=40, e=50, f=60)
```

https://www.python.org/dev/peps/pep-0570/

Python 3.8 — октябрь 2019

- Positional-only arguments

```
def function(a, b, /, c, d, *, e, f):
    print(a, b, c, d, e, f)


function(10, 20, 30, d=40, e=50, f=60)

function(10, b=20, c=30, d=40, e=50, f=60)
function(10, 20, 30, 40, 50, f=60)
```

https://www.python.org/dev/peps/pep-0570/

Python 3.8 — октябрь 2019

- “=” в f-строках

```
my_var = 'cat'
print(f'{my_var=}')    # my_var='cat'
print(f'{my_var = }')  # my_var = 'cat'
```

https://bugs.python.org/issue36817

Python 3.8 — октябрь 2019

- “=” в f-строках

```
my_var = 'cat'
print(f'{my_var=}')    # my_var='cat'
print(f'{my_var = }')  # my_var = 'cat'

print(f'{my_var.upper() = :a^7}')   # my_var.upper() = 'aaCATaa'
print(f'{my_var.upper() = :b>7}')   # my_var.upper() = 'bbbbCAT’
```

https://bugs.python.org/issue36817

Python 3.8 — октябрь 2019

- pow() с отрицательной экспонентой

https://bugs.python.org/issue36027

Python 3.8 — октябрь 2019

- pow() с отрицательной экспонентой

3.7

```
>>> pow(2, -1, 7)
Traceback (most recent call last):
  File "<stdin>", line 1, in <module>
ValueError: pow() 2nd argument cannot be negative when 3rd argument specified
```

```
>>> pow(2, -1, 7)
4
```

3.8

https://bugs.python.org/issue36027

Python 3.8 — октябрь 2019

- continue в finally
- куча оптимизаций: списки известной длины, запись переменных класса, вызов простых встроенных методов, pickle, …

https://bugs.python.org/issue32489
https://bugs.python.org/issue35664
https://bugs.python.org/issue33234
https://bugs.python.org/issue36012

Опять отложили ☹

- None-aware operators

```
def insort_right(a, x, lo=0, hi=None):
    if hi is None:
        hi = len(a)
```

```
def insort_right(a, x, lo=0, hi=None):
    hi ??= len(a)
```

https://www.python.org/dev/peps/pep-0505/

Опять отложили ☹

- None-aware operators

```
def insort_right(a, x, lo=0, hi=None):
    if hi is None:
        hi = len(a)
```

```
def insort_right(a, x, lo=0, hi=None):
    hi ??= len(a)
```

```
encoding = options.encoding
if encoding is None:
    encoding = sys.getdefaultencoding()
optdict = dict(
   encoding=encoding, css=options.css
)
```

```
optdict = dict(
   encoding=options.encoding ??
sys.getdefaultencoding(),
   css=options.css
)
```

Опять отложили ☹

- None-aware operators

```
mangle_from = True if policy is None else policy.mangle_from
```

```
mangle_from = policy?.mangle_from ?? True
```

https://www.python.org/dev/peps/pep-0505/

https://docs.python.org/3.9/whatsnew/3.9.html
https://pythonz.net/versions/named/3.9/
https://habr.com/ru/company/skillfactory/blog/507264/
https://www.python.org/dev/peps/pep-0596/

Python 3.9 — октябрь 2020

- `removeprefix()` и `removesuffix()`

```
>>> 'TestHook'.removeprefix('Test')
'Hook'
>>> 'BaseTestCase'.removeprefix('Test')
'BaseTestCase’
>>> 'MiscTests'.removesuffix('Tests')
'Misc'
```

https://www.python.org/dev/peps/pep-0616/
https://bugs.python.org/issue39939

Python 3.9 — октябрь 2020

- Объединение словарей

```
a = {1: 'a', 2: 'b', 3: 'c'}
b = {2: 'd', 5: 'e'}
c = a | b
```

https://www.python.org/dev/peps/pep-0584
https://bugs.python.org/issue36144

Python 3.9 — октябрь 2020

- Объединение словарей

```
a = {1: 'a', 2: 'b', 3: 'c'}
b = {2: 'd', 5: 'e'}
c = a | b

a |= b
```

https://www.python.org/dev/peps/pep-0584
https://bugs.python.org/issue36144

Python 3.9 — октябрь 2020

- Объединение словарей

```
a = {1: 'a', 2: 'b', 3: 'c'}
b = {2: 'd', 5: 'e'}
c = a | b

a |= b

a = {'a': 'one', 'b': 'two'}
b = ((i, i**2) for i in range(3))
a |= b
```

https://www.python.org/dev/peps/pep-0584
https://bugs.python.org/issue36144

Python 3.9 — октябрь 2020

- Хитрые декораторы

```
buttons = [QPushButton(f'Button {i}') for i in range(10)]

@buttons[0].clicked.connect
def spam():
    ...
```

https://www.python.org/dev/peps/pep-0614/

Python 3.9 — октябрь 2020

- Хитрые декораторы

```
button_0 = buttons[0]

@button_0.clicked.connect
def spam():
    ...
```

```
def _(x):
    return x

@_(buttons[0].clicked.connect)
def spam():
    ...

@eval("buttons[1].clicked.connect")
def eggs():
    ...
```

https://www.python.org/dev/peps/pep-0614/

Python 3.9 — октябрь 2020

- `list[int]` вместо `typing.List[int]`
- новые модули — `zoneinfo` и `graphlib`
- HTTP-коды 103 `EARLY_HINTS`, 418 `IM_A_TEAPOT` и 425 `TOO_EARLY`
- `random.Random.randbytes`
- `sys.stderr` теперь по умолчанию сбрасывает буфер после `\n`
- `fractions.gcd()` → `math.gcd()`

https://www.python.org/dev/peps/pep-0585/
https://bugs.python.org/issue39509
https://docs.python.org/3.9/library/graphlib.html
https://bugs.python.org/issue40286

	3.4	3.5	3.6	3.7	3.8	3.9
Variable and attribute read access:						
read_local	7.1	7.1	5.4	5.1	3.9	4.0
read_nonlocal	7.1	8.1	5.8	5.4	4.4	4.8
read_global	15.5	19.0	14.3	13.6	7.6	7.7
read_builtin	21.1	21.6	18.5	19.0	7.5	7.7
read_classvar_from_class	25.6	26.5	20.7	19.5	18.4	18.6
read_classvar_from_instance	22.8	23.5	18.8	17.1	16.4	20.1
read_instancevar	32.4	33.1	28.0	26.3	25.4	27.7
read_instancevar_slots	27.8	31.3	20.8	20.8	20.2	24.5
read_namedtuple	73.8	57.5	45.0	46.8	18.4	23.2
read_boundmethod	37.6	37.9	29.6	26.9	27.7	45.9
Variable and attribute write access:						
write_local	8.7	9.3	5.5	5.3	4.3	4.2
write_nonlocal	10.5	11.1	5.6	5.5	4.7	4.9
write_global	19.7	21.2	18.0	18.0	15.8	17.2
write_classvar	92.9	96.0	104.6	102.1	39.2	43.2
write_instancevar	44.6	45.8	40.0	38.9	35.5	40.7
write_instancevar_slots	35.6	36.1	27.3	26.6	25.7	27.7

```
Data structure read access:
    read_list                       24.2    24.5    20.8    20.8    19.0   21.1
    read_deque                      24.7    25.5    20.2    20.6    19.8   21.6
    read_dict                       24.3    25.7    22.3    23.0    21.0   22.5
    read_strdict                    22.6    24.3    19.5    21.2    18.9   21.6

Data structure write access:
    write_list                      27.1    28.5    22.5    21.6    20.0   21.6
    write_deque                     28.7    30.1    22.7    21.8    23.5   23.2
    write_dict                      31.4    33.3    29.3    29.2    24.7   27.8
    write_strdict                   28.4    29.9    27.5    25.2    23.1   29.8

Stack (or queue) operations:
    list_append_pop                 93.4   112.7    75.4    74.2    50.8   53.9
    deque_append_pop                43.5    57.0    49.4    49.2    42.5   45.5
    deque_append_popleft            43.7    57.3    49.7    49.7    42.8   45.5

Timing loop:
    loop_overhead                    0.5     0.6     0.4     0.3     0.3    0.3
```

Отказали

- Coordinated Python release

aiohttp
cryptography
Cython
Django
numpy
pandas
pip
requests
scipy
Sphinx (needed to build Python)
sqlalchemy
pytest
tox

https://www.python.org/dev/peps/pep-0608/
https://discuss.python.org/t/rejected-rfc-pep-608-coordinated-python-release/2539

Python 3.10 или позже

- ```
  logging.Formatter(
      "%(ip)s %(message)s", defaults={"ip": None}
  )
  ```
- ```
  python -L info
  ```

https://bugs.python.org/issue40884
https://bugs.python.org/issue40886

https://www.djangoproject.com/weblog/2020/aug/04/django-31-released/
https://docs.djangoproject.com/en/3.1/releases/3.1/

Django 3.1

- асинхронные вьюшки
- всеобщие JSONField
- переехали на pathlib

https://learndjango.com/tutorials/nameerror-name-os-not-defined

jsonschema-rs

Валидация JSON Schema на расте

library	false	{"minimum": 10}	small	big
jsonschema-rs	141.45 ns	144.66 ns	652.84 ns	4.89 ms
fastjsonschema	48.92 ns (**x0.34**)	95.22 ns (**x0.65**)	3.91 us (**x6**)	554.74 ms (**x113.44**)
jsonschema	204.94 ns (**x1.44**)	1.52 us (**10.54**)	57.44 us (**x88**)	1.38 s (**x282.41**)

https://github.com/Stranger6667/jsonschema-rs/tree/master/python

httpx — сентябрь 2020

- A next-generation HTTP client for Python.
- как requests, только ещё круче
- поддержка async и HTTP/2

https://github.com/encode/httpx
https://www.python-httpx.org/

marcel

```
M-0.8.7 jao@cheese:~$ ps | select (p: 'marcel' in p.commandline)
    114010  113050  jao        S  /bin/bash /usr/local/bin/marcel
    114011  114010  jao        S  python3 -m marcel.main
    115741  115733  jao        S  /bin/bash /usr/local/bin/marcel
    115742  115741  jao        S  python3 -m marcel.main
    115758  115742  jao        R  python3 -m marcel.main
M-0.8.7 jao@cheese:~$
```

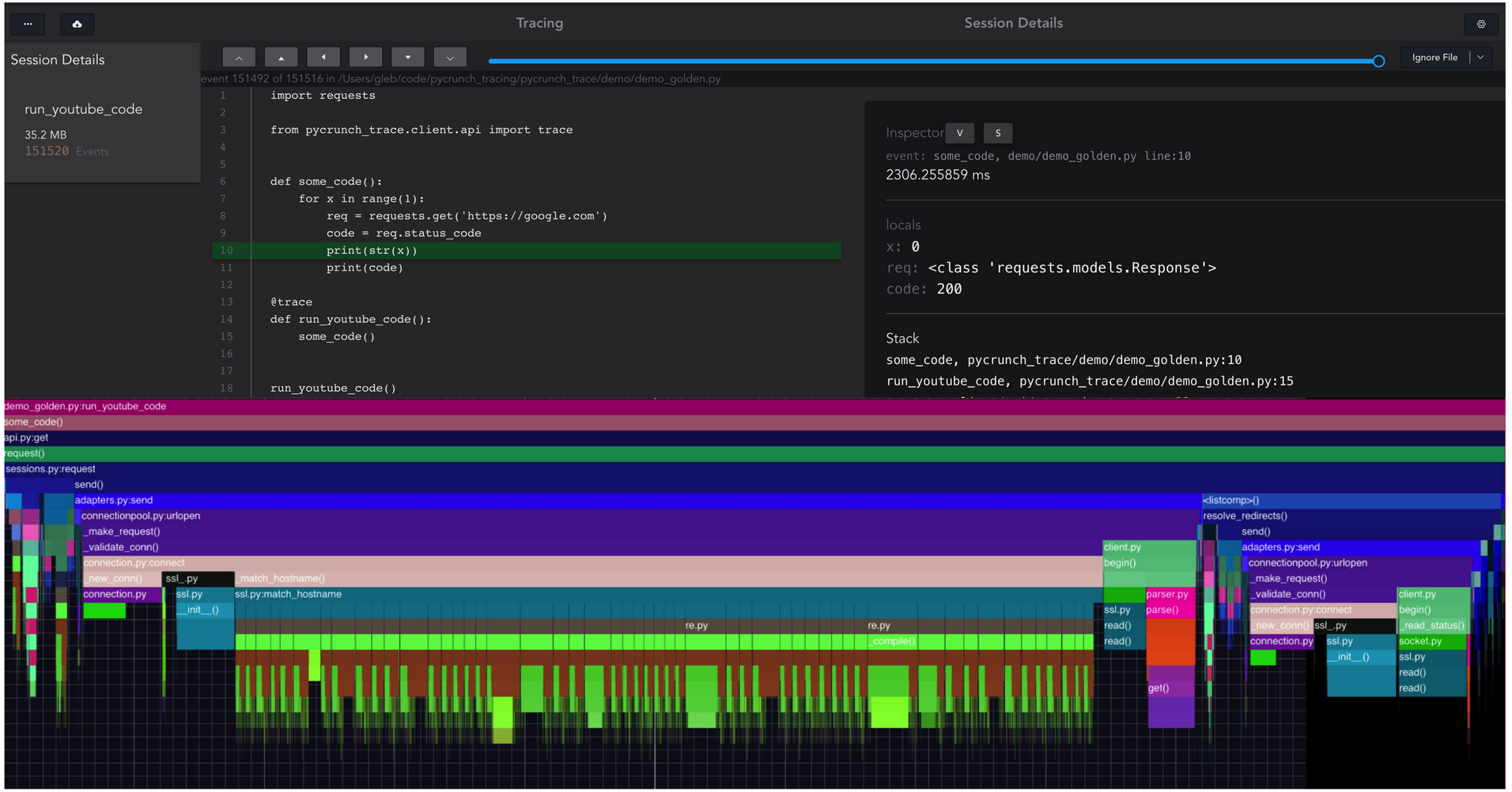
https://www.marceltheshell.org/
https://github.com/geophile/marcel

marcel

```
ls -f | select (f: now() - f.mtime > days(100)) | map (f: f.unlink())
```

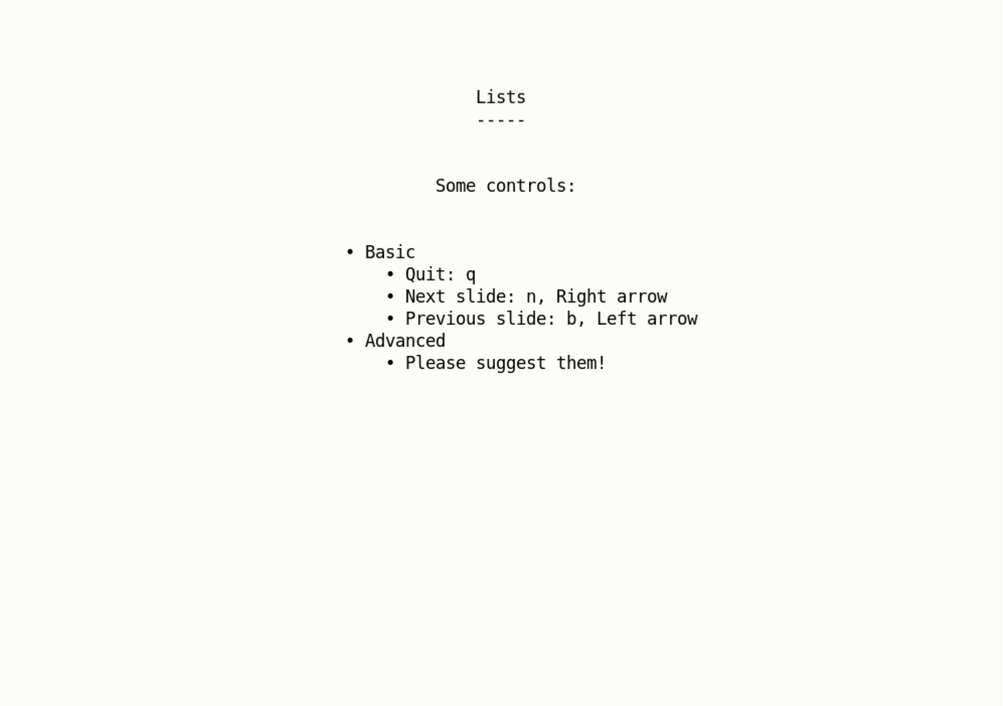
https://www.marceltheshell.org/
https://github.com/geophile/marcel

PyTrace — Time Travel Debugging



https://pytrace.com/
https://habr.com/ru/post/504908/

present — A terminal-based presentation tool



https://present.readthedocs.io/en/latest/
https://github.com/vinayak-mehta/present

present — A terminal-based presentation tool

https://present.readthedocs.io/en/latest/
https://github.com/vinayak-mehta/present

Яндекс

А у вас что нового?

Андрей Гейн

Яндекс.Облако

andgein@yandex-team.ru

http://bit.ly/andgein_pytup