PEP 498: the Monologue

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PyCon Australia 2017 @pyconau

Hello! 

Who are you?

Are you …

… new to Python?

Are you …

… only familiar with one PEP?

Are you …

… using Python < 3.6?

Who am I?

@mariatta

Python Core Developer

PyLadies Vancouver Co-Organizer

What's a PEP?

Python Enhancement Proposal

PEP 1:

PEP Purpose and Guideline

https://www.python.org/dev/peps/pep-0001

pitch to python-ideas

draft a PEP

Official template: PEP 12

alt template: pep_cookiecutter 🐍🍪

BDFL Pronouncement

429 PEPs today

82 rejected (~19%)

PEP 498

Jul 20 01:12:31 CEST 2015

From: Mike Miller
Subject: [python-ideas] Briefer string format

Have long wished python could format strings easily like bash or perl do … and then it hit me

```
csstext += f'{nl}{selector}{space}{{{nl}'
```

I've seen others make similar suggestions, but to my knowledge they didn't include this **pleasing brevity** aspect.

https://mail.python.org/pipermail/python-ideas/2015-July/034657.html

Jul 20 01:12:31 CEST 2015

Jul 20 01:27:42 CEST 2015

From: Eric V. Smith

Subject: Re: [python-ideas] Briefer string format

What would this do?

https://mail.python.org/pipermail/python-ideas/2015-July/034658.html

Jul 20 01:12:31 CEST 2015

Jul 20 01:27:42 CEST 2015

Jul 20 01:44:09 CEST 2015

From: C. A.

Subject: Re: [python-ideas] Briefer string format

I'm **-1** on the specific idea, though definitely sympathetic to the broader concept of simplified formatting of strings.

https://mail.python.org/pipermail/python-ideas/2015-July/034660.html

Jul 20 01:12:31 CEST 2015 From: S. D.

Jul 20 01:27:42 CEST 2015 Subject: Re: [python-ideas] Briefer string format

Jul 20 01:44:09 CEST 2015

Jul 20 02:43:29 CEST 2015 It's **syntactic sugar** for a simple function call with perfectly well defined semantics - don't even have to modify the string literal.

I'm **+1**.

https://mail.python.org/pipermail/python-ideas/2015-July/034669.html

that escalated quickly

(**60+** replies later)

Jul 20 01:12:31 CEST 2015

Jul 20 01:27:42 CEST 2015

Jul 20 01:44:09 CEST 2015

Jul 20 02:43:29 CEST 2015

Jul 21 08:05:17 CEST 2015

From: Guido van Rossum

Subject: Re: [python-ideas] Briefer string format

Thanks, Eric! You're addressing all my concerns and you're going exactly where I wanted this to go. **I hope that you will find the time to write up a PEP;**

https://mail.python.org/pipermail/python-ideas/2015-July/034729.html

August 7th, 2015

PEP 498: Literal String Formatting

by: Eric V. Smith

August 7th, 2015

August 30th, 2015

PEP 498: Literal String Interpolation

by: Eric V. Smith

August 7th, 2015

August 30th, 2015

September 5th, 2015

PEP 498: Literal String Interpolation

ready for pronouncement

August 7th, 2015

September 5th, 2015

August 30th, 2015

September 7th, 2015

PEP 498: Literal String Interpolation

RATIONALE

"The existing ways of formatting are either **error prone**, **inflexible**, or **cumbersome**."

```
>>> name = "Bart"
>>> print("Hello, %s." % name)
Hello, Bart.
```

```
>>> name = "Bart"
>>> age = 10
>>> print("Hello, %s. You're %s." % name, age)
Traceback (most recent call last):
  File "<stdin>", line 1, in <module>
TypeError: not enough arguments for format string
```

```
>>> name = "Bart"
>>> age = 10
>>> print("Hello, %s. You're %s." % (name, age))
Hello, Bart. You're 10.
```

PEP 3101: str.format

https://www.python.org/dev/peps/pep-3101

```
>>> name = "Bart"
>>> age = 10
>>> print("Hello, {name}. You're {age}.".format(name=name, age=age))
Hello, Bart. You're 10.
```

PEP 498: f-string

https://www.python.org/dev/peps/pep-0498

```
>>> name = "Bart"
>>> age = 10
>>> print("Hello, {name}. You're {age}.".format(name=name, age=age))
```

```
>>> name = "Bart"
>>> age = 10
>>> print("Hello, {name}. You're {age}.")
```

```
>>> name = "Bart"
>>> age = 10
>>> print(f"Hello, {name}. You’re {age}.")
Hello, Bart. You're 10.
```

Recap

```
"Hello, %s. You're %s." % (name, age)
```

```
"Hello, {name}. You're {age}.".format(name=name, age=age)
```

```
f"Hello, {name}. You're {age}."
```

expression

```
f"Hello, {name}. You're {age}."
```

literal

```
f"Hello, {name}. You're {age}."
```

```
f"..."
```

```
F'...'
```

```
f"""..."""
```

Raw f-strings

r + f = fr"…"

```
>>> print("The smiley face emoji is \U0001f600")
The smiley face emoji is 😀

>>> print(r"The smiley face unicode is \U0001f600")
The smiley face unicode is \U0001f600
```

```
>>> code = "emoji"
>>> print(f"The smiley face {code} is \U0001f600")
The smiley face emoji is 😀

>>> code = "unicode"
>>> print(fr"The smiley face {code} is \U0001f600")
The smiley face unicode is \U0001f600
```

`fr"..."`

`RF"..."`

`rF"""..."""`

```
fb"..."
```

```
uf"..."
```

```
>>> def to_uppercase(input):
...     return input.upper()
...
>>> name = "bart simpson"
>>> print(f"Hi {to_uppercase(name)}!")
Hi BART SIMPSON!
```

```
>>> pi = 3.14159265

>>> print("pi 3 decimal places %.3f" % pi)
3.142

>>> print(f"pi 3 decimal places {pi:.3f}")
3.142
```

```
>>> number = 1024

>>> print(f"hex: {number:#0x}")
hex: 0x400

>>> print(f"binary: {number:#0b}")
binary: 0b10000000000

>>> print(f"octal: {number:#0o}")
octal: 0o2000
```

```
>>> pycon_au = datetime(year=2017, month=8, day=5)
>>> print(f"{pycon_au:%b %d, %Y}")
Aug 05, 2017

>>> print(f"{name:>20}")
                Bart

>>> print(f"{age:=+5d}")
+  10
```

bpo-28739

not in docstrings

```
>>> def spam():
...       f"doing stuff”
...
>>> spam.__doc__ is None
True
```

bpo-29668

multiline strings?

```
>>> name = "Bart"
>>> prize = 50
>>> tomorrow = today() + timedelta(days=1)
>>> message = (f"Dear {name},"
...            "You can win {prize:.2f}$"
...            "Make a purchase before {tomorrow:%Y-%b-%d}")
```

bpo-29668

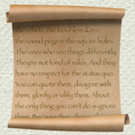
multiline strings

```
>>> message = (f"Dear {name},"
...             f”You can win {prize:.2f}$"
...             f"Make a purchase before {tomorrow}:%Y-%b-%d")
```

bpo-29287

IDLE needs syntax highlighting

- Needs separate colorization to make the expression distinct from the rest of the string.
- Needs close-brace matching.
- Would be desirable to have autocompletion as well.



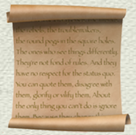
Documentation … ? 🤷‍♀️

f-string search

Search Results

Your search did not match any documents. Please make sure that all words are spelled correctly and that you've selected enough categories.

Python » 3.6.2rc1 Documentation » modules | index



Documentation

🔍 Formatted String Literal

🔗 docs.python.org > glossary > f-string

⭐ https://docs.python.org/3/reference/lexical_analysis.html#formatted-string-literals

timeit

```
$ python3 -mtimeit -s 'a=2' "'%s' % a"
10000000 loops, best of 3: 0.197 usec per loop
```

```
$ python3 -mtimeit -s 'a=2' "'%s' % a"
10000000 loops, best of 3: 0.197 usec per loop

$ python3 -mtimeit -s 'a=2' '"{}".format(a)'
1000000 loops, best of 3: 0.341 usec per loop
```

```
$ python3 -mtimeit -s 'a=2' "'%s' % a"
10000000 loops, best of 3: 0.197 usec per loop

$ python3 -mtimeit -s 'a=2' '"{}".format(a)'
1000000 loops, best of 3: 0.341 usec per loop

$ python3 -mtimeit -s 'a=2' 'f"{a}"'
10000000 loops, best of 3: 0.105 usec per loop
```

```
$ python3 -mtimeit -s 'a=2' "'%s' % a"
10000000 loops, best of 3: 0.197 usec per loop

$ python3 -mtimeit -s 'a=2' '"{}".format(a)'
1000000 loops, best of 3: 0.341 usec per loop

$ python3 -mtimeit -s 'a=2' 'f"{a}"'
10000000 loops, best of 3: 0.105 usec per loop
```

PEP 498

f-strings

Python 3.6

download at www.python.org

bonus!

16 PEPs included

PEP 468	PEP 506	PEP 520	PEP 526
PEP 487	PEP 509	PEP 523	PEP 528
PEP 495	PEP 515	PEP 524	PEP 529
PEP 498	PEP 519	PEP 525	PEP 530

Thank you!

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File bugs at https://bugs.python.org

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