

Pythonize (pz)

pro Python v Bashi

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Paralely

- Xonsh
- Awk
- GNU coreutils



Paralely – obyčejný interpreter

```
python -c "print(1)" # 1
```



Paralely – obyčejný interpreter

```
python -c "print(1)" # 1  
python -c 'print("'${PWD}"))'
```



Paralely – obyčejný interpreter

```
python -c "print(1)" # 1
```

```
python -c 'print("'${PWD}''")'
```

```
python -c 'import sys; sys.stdin.read()...
```



Paralely – obyčejný interpreter

```
python -c "print(1)" # 1
```

```
python -c 'print("'${PWD}''")'
```

```
python -c 'import sys; sys.stdin.read()...
```

```
n -c 'import sys; sys.stdin.buffer.read()...
```



Hello world example – upper case

```
$ var='hello'
```



Hello world example – upper case

```
$ var='hello'
```

```
$ echo ${var^^}
```

```
HELLO
```



Hello world example – upper case

```
$ var='hello'
```

```
$ echo ${var^^}
```

```
HELLO
```

```
$ echo $(hello^^)
```

```
hello^^: command not found
```

```
$ echo ${'hello'^^}
```



Hello world example – upper case

```
$ var='hello'
```

```
$ echo ${var^^}
```

```
HELLO
```

```
$ echo $(hello^^)
```

```
hello^^: command not found
```

```
$ echo ${'hello'^^}
```

```
bash: ${'hello'^^}: bad substitution
```

```
$ echo 'hello'^^
```



Hello world example – upper case

```
$ var='hello'
```

```
$ echo ${var^^}
```

```
HELLO
```

```
$ echo $(hello^^)
```

```
hello^^: command not found
```

```
$ echo ${'hello'^^}
```

```
bash: ${'hello'^^}: bad substitution
```

```
$ echo 'hello'^^
```

```
hello^^
```

```
$ hello^^
```

```
hello^^: command not found
```



Hello world example – upper case

```
$ var='hello'
```

```
$ echo ${var^^}
```

```
HELLO
```

```
$ echo $(hello^^)
```

```
hello^^: command not found
```

```
$ echo ${'hello'^^}
```

```
bash: ${'hello'^^}: bad substitution
```

```
$ echo 'hello'^^
```

```
hello^^
```

```
$ hello^^
```

```
hello^^: command not found
```

```
$ echo 'hello' | tr '[:lower:]' '[:upper:]'
```

```
HELLO
```



Hello world example – upper case

```
$ var='hello'
```

```
$ echo ${var^^}
```

```
HELLO
```

```
$ echo $(hello^^)
```

```
hello^^: command not found
```

```
$ echo ${'hello'^^}
```

```
bash: ${'hello'^^}: bad substitution
```

```
$ echo 'hello'^^
```

```
hello^^
```

```
$ hello^^
```

```
hello^^: command not found
```

```
$ echo 'hello' | tr '[:lower:]' '[:upper:]'
```

```
HELLO
```

```
$ echo 'hello' | tr a-z A-Z
```

```
HELLO
```



Hello world example – upper case

```
$ var='hello'
```

```
$ echo ${var^^}
```

```
HELLO
```

```
$ echo $(hello^^)
```

```
hello^^: command not found
```

```
$ echo ${'hello'^^}
```

```
bash: ${'hello'^^}: bad substitution
```

```
$ echo 'hello'^^
```

```
hello^^
```

```
$ hello^^
```

```
hello^^: command not found
```

```
$ echo 'hello' | tr '[:lower:]' '[:upper:]'
```

```
HELLO
```

```
$ echo 'hello' | tr a-z A-Z
```

```
HELLO
```

```
$ echo 'hello' | pz s.upper
```

```
HELLO
```



Stripping

```
$ curl -s example.com | grep href
```

```
<p><a href="https://www.iana.org/domains/example">More information...</a></p>
```



Stripping

```
$ curl -s example.com | grep href
```

```
<p><a href="https://www.iana.org/domains/example">More information...</a></p>
```

```
$ curl -s example.com | grep href | xargs
```

```
<p><a href=https://www.iana.org/domains/example>More information...</a></p>
```



Stripping

```
$ curl -s example.com | grep href
```

```
<p><a href="https://www.iana.org/domains/example">More information...</a></p>
```

```
$ curl -s example.com | grep href | xargs
```

```
<p><a href=https://www.iana.org/domains/example>More information...</a></p>
```

```
$ curl -s example.com | grep href | pz s.strip
```

```
<p><a href="https://www.iana.org/domains/example">More information...</a></p>
```



Stripping

```
$ curl -s example.com | grep href
```

```
<p><a href="https://www.iana.org/domains/example">More information...</a></p>
```

```
$ curl -s example.com | grep href | xargs
```

```
<p><a href=https://www.iana.org/domains/example>More information...</a></p>
```

```
$ curl -s example.com | grep href | pz s.strip
```

```
<p><a href="https://www.iana.org/domains/example">More information...</a></p>
```

```
$ curl -s example.com | grep href | pz "s.split('\ ')[1]"
```

```
https://www.iana.org/domains/example
```



Stripping

```
$ curl -s example.com | grep href
```

```
<p><a href="https://www.iana.org/domains/example">More information...</a></p>
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```
<p><a href=https://www.iana.org/domains/example>More information...</a></p>
```

```
$ curl -s example.com | grep href | pz s.strip
```

```
<p><a href="https://www.iana.org/domains/example">More information...</a></p>
```

```
$ curl -s example.com | grep href | pz "s.split('\ ')[1]"
```

```
https://www.iana.org/domains/example
```

```
$ curl -s example.com | pz --findall '(https?://[^s"]+)'
```

```
https://www.iana.org/domains/example
```



Overview

- Variables
- Clauses
- Flags



Overview

- Variables `s – string, ...`
- Clauses `setup, main, end`
- Flags `--stderr, -1 first line`



Variables

- `s` – current line
- `n` – converted to an `int` (or `float`)`
- `b` – as a byte-string
- `count` – current line number
- `text` – whole text, all lines together
- `lines` – list of lines so far processed
- `numbers` – list of numbers so far processed
- `skip` – omit line if True
- `i=0, S=set(), L=list(), D=dict(), C=Counter()` – other global variables



Variables

```
--- file ---  
hey  
buddy
```

- `s` – current line
 - `n` – converted to an `int`` (or `float``)
 - `b` – as a byte-string
 - `count` – current line number
 - `text` – whole text, all lines together
 - `lines` – list of lines so far processed
 - `numbers` – list of numbers so far processed
 - `skip` – omit line if True
 - `i=0`, `S=set()`, `L=list()`, `D=dict()`, `C=Counter()` – other global variables
- ```
cat file | pz 's[:-3]+s[:-3]' # bubu
```



# Variables

```
--- file ---
```

```
1
2
3.5
```

- `s` – current line
- `n` – converted to an `int`` (or `float``)
- `b` – as a byte-string
- `count` – current line number
- `text` – whole text, all lines together
- `lines` – list of lines so far processed
- `numbers` – list of numbers so far processed
- `skip` – omit line if True
- `i=0`, `S=set()`, `L=list()`, `D=dict()`, `C=Counter()` – other global variables

```
cat file | pz 'n**2'
```

```
1
4
12.25
```





# Variables

```
--- file ---
1
2
3.5
```

- `s` – current line
- `n` – converted to an `int`` (or `float``)
- `b` – as a byte-string
- `count` – **current line number**
- `text` – whole text, all lines together
- `lines` – list of lines so far processed
- `numbers` – list of numbers so far processed
- `skip` – omit line if True
- `i=0`, `S=set()`, `L=list()`, `D=dict()`, `C=Counter()` – other global variables

```
cat file | pz 'count // 2'
0
1
1
```



# Variables

```
--- file ---
```

```
1
2
3.5
```

```
cat file | pz --end 'len(text)' # 7
```

- `s` – current line
- `n` – converted to an `int`` (or `float``)
- `b` – as a byte-string
- `count` – current line number
- `text` – **whole text, all lines together**
- `lines` – list of lines so far processed
- `numbers` – list of numbers so far processed
- `skip` – omit line if True
- `i=0`, `S=set()`, `L=list()`, `D=dict()`, `C=Counter()` – other global variables



# Variables

```
--- file ---
```

```
1
2
3.5
```

- `s` – current line
- `n` – converted to an `int` (or `float`)`
- `b` – as a byte-string
- `count` – current line number
- `text` – whole text, all lines together
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- `numbers` – **list of numbers so far processed**
- `skip` – omit line if True
- `i=0, S=set(), L=list(), D=dict(), C=Counter()` – other global variables

```
cat file | pz 'sum(numbers)'
```

```
1
3
6.5
```



# Variables

- `s` – current line
- `n` – converted to an `int`` (or `float``)
- `b` – as a byte-string
- `count` – current line number
- `text` – whole text, all lines together
- `lines` – list of lines so far processed
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- `skip` – omit line if True
- `i=0`, `S=set()`, `L=list()`, `D=dict()`, `C=Counter()` – other global variables

```
--- file ---
```

```
1
2
3.5
```

```
cat file | pz sum
```

```
1
3
6.5
```



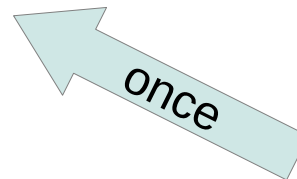
shorter



# Variables

```
--- file ---
1
2
3.5
```

```
cat file | pz --end sum
6.5
```



- `s` – current line
- `n` – converted to an `int` (or `float`)`
- `b` – as a byte-string
- `count` – current line number
- `text` – whole text, all lines together
- `lines` – list of lines so far processed
- `numbers` – **list of numbers so far processed**
- `skip` – omit line if True
- `i=0, S=set(), L=list(), D=dict(), C=Counter()` – other global variables



# Variables

```
--- file ---
```

```
1
2
3.5
```

- `s` – current line
- `n` – converted to an `int` (or `float`)
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- `count` – current line number
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- `lines` – list of lines so far processed
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- `skip` – omit line if True
- `i=0`, `S=set()`, `L=list()`, `D=dict()`, `C=Counter()` – other global variables

```
cat file | pz --end sum --verbose
Changing the end clause to: s = sum
6.5
```

```
Successful attempt to use `numbers`
as the callable parameter
in the end clause: s = sum([1, 2, 3.5])
```



# Flags

- Clause-related
  - `-F, --filter` Unchanged line passes if evaluated to True
  - `-f, --format` Main and end clauses are considered f-strings
- I/O
  - `-n NUM` Process only such number of lines
  - `-0` Skip all lines output. (Useful in combination with `--end`.)
  - `--empty` Output empty lines. (By default skipped.)
  - `--stderr` Print to the STDERR, letting the original STDOUT intact
- Regular
  - `--findall` Equivalent to ``re.findall(COMMAND, s)``
  - `--sub SUBSTITUTION` Equivalent to ``re.sub(COMMAND, SUBSTITUTION, s)``



# Flags

--- file ---

1

2

3.5

- Clause-related

- `-F, --filter` **Unchanged line passes if evaluated to True**
- `-f, --format` Main and end clauses are considered f-strings

```
cat file | pz -F 'count > 1'
2
3.5
```

- I/O

- `-n NUM` Process only such number of lines
- `-0` Skip all lines output. (Useful in combination with `--end`.)
- `--empty` Output empty lines. (By default skipped.)
- `--stderr` Print to the STDERR, letting the original STDOUT intact

- Regular

- `--findall` Equivalent to ``re.findall(COMMAND, s)``
- `--sub SUBSTITUTION` Equivalent to ``re.sub(COMMAND, SUBSTITUTION, s)``





# Flags

--- file ---

1

2

3.5

- Clause-related

- `-F, --filter` Unchanged line passes if evaluated to True
- `-f, --format` **Main and end clauses are considered f-strings**

```
cat file | pz -f '{len(s)}: {s}'
1: 1
1: 2
3: 3.5
```

- I/O

- `-n NUM` Process only such number of lines
- `-0` Skip all lines output. (Useful in combination with `--end`.)
- `--empty` Output empty lines. (By default skipped.)
- `--stderr` Print to the STDERR, letting the original STDOUT intact

- Regular

- `--findall` Equivalent to ``re.findall(COMMAND, s)``
- `--sub SUBSTITUTION` Equivalent to ``re.sub(COMMAND, SUBSTITUTION, s)``



# Flags

```
seq 1 6
| pz --stderr "'Processed' if count % 2 == 0 else None"
1
2
Processed
3
4
Processed
5
6
Processed
```

- Clause-related

- `-F, --filter` Unchanged line passes if evaluated to True
- `-f, --format` Main and end clauses are considered f-strings

- I/O

- `-n NUM` Process only such number of lines
- `-0` Skip all lines output. (Useful in combination with `--end`.)
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- Regular

- `--findall` Equivalent to ``re.findall(COMMAND, s)``
- `--sub SUBSTITUTION` Equivalent to ``re.sub(COMMAND, SUBSTITUTION, s)``



# Flags

--- file ---

Sentinel `cat file | pz '([aeiou])' --sub '*\1'`

Turris Omnia

RIPE Atlas `S*ent*in*el`

`T*urr*is`

`RIPE Atl*as`

- Clause-related

- `-F, --filter` Unchanged line passes if evaluated to True
- `-f, --format` Main and end clauses are considered f-strings

- I/O

- `-n NUM` Process only such number of lines
- `-0` Skip all lines output. (Useful in combination with `--end`.)
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- Regular

- `--findall` Equivalent to ``re.findall(COMMAND, s)``
- `--sub SUBSTITUTION` Equivalent to ``re.sub(COMMAND, SUBSTITUTION, s)``



\$ ll -R

```
.:
total 1946884
drwxrwxrwt 4 root root 420 lis 9 00:39 ./
drwxrwxrwt 43 root root 36864 lis 9 00:39 ../
-rw-rw-r-- 1 mana mana 9119 lis 8 19:12 894654.pem
-rw-rw-r-- 1 mana mana 1925 lis 8 19:12 894654.pem
-rw-rw-r-- 1 mana mana 9077 lis 8 19:12 ca4512354.pem
-rw-rw-r-- 1 mana mana 1925 lis 8 19:12 ca4512354.pem
-rw-rw-r-- 1 mana mana 1990884812 lis 8 15:42 Filip.Pokorny.1080p.10bit.CZ.BDRip.x265.mkv
-rw-rw-r-- 1 mana mana 11046 lis 8 19:18 dva
-rw-rw-r-- 1 mana mana 27 lis 9 00:18 file
-rw----- 1 mana mana 142 lis 9 00:23 .file.kate-swp
-rw-rw-r-- 1 mana mana 45 lis 9 00:39 gnome-propsetter.tmp
-rw-rw-r-- 1 mana mana 2568 lis 8 16:09 index.html
-rw-rw-r-- 1 mana mana 11006 lis 8 19:17 jedna
-rw-rw-r-- 1 mana mana 71668 lis 8 20:39 pz-pokorny.otp
drwxrwxr-x 2 mana mana 80 lis 8 18:37 raz/
-rw-rw-r-- 1 mana mana 224897 lis 8 20:43 sablona_fp.odp
-rw-rw-r-- 1 mana mana 909921 lis 8 19:09 'smime (1).p7m'
-rw-rw-r-- 1 mana mana 70996 lis 8 14:45 smime.p7m
drwxrwxr-x 2 mana mana 60 lis 8 19:23 templates/
-rw-rw-r-- 1 mana mana 8939 lis 5 19:53 text.txt
-rw-rw-r-- 1 mana mana 1314102 lis 8 19:22 Ticket-2021110865804549-TicketID-41297-TempID-42345.eml
```

./raz:

```
total 8
drwxrwxr-x 2 mana mana 80 lis 8 18:37 ./
drwxrwxrwt 4 root root 420 lis 9 00:39 ../
-rw-rw-r-- 1 mana mana 5 lis 8 18:37 dva.html
-rw-rw-r-- 1 mana mana 44 lis 8 18:37 raz.html
```

./templates:

```
total 948
drwxrwxr-x 2 mana mana 60 lis 8 19:23 ./
drwxrwxrwt 4 root root 420 lis 9 00:39 ../
-rw-rw-r-- 1 mana mana 968704 lis 8 19:23 Vertone1121098.img
```

```
$ ll -R
.:
total 1946884
drwxrwxrwt 4 root root 420 lis 9 00:39 ./
drwxrwxrwt 43 root root 36864 lis 9 00:39 ../
-rw-rw-r-- 1 mana mana 9119 lis 8 19:12 894654.pem
-rw-rw-r-- 1 mana mana 1925 lis 8 19:12 894654.pem
-rw-rw-r-- 1 mana mana 9077 lis 8 19:12 ca4512354.pem
-rw-rw-r-- 1 mana mana 1925 lis 8 19:12 ca4512354.pem
-rw-rw-r-- 1 mana mana 1990884812 lis 8 15:42 Filip.Pokorny.1080p.10bit.CZ.BDRip.x265.mkv
-rw-rw-r-- 1 mana mana 11046 lis 8 19:18 dva
-rw-rw-r-- 1 mana mana 27 lis 9 00:18 file
-rw----- 1 mana mana 142 lis 9 00:23 .file.kate-swp
-rw-rw-r-- 1 mana mana 45 lis 9 00:39 gnome-propsetter.tmp
-rw-rw-r-- 1 mana mana 2568 lis 8 16:09 index.html
-rw-rw-r-- 1 mana mana 11006 lis 8 19:17 jedna
-rw-rw-r-- 1 mana mana 71668 lis 8 20:39 pz-pokorny.otp
drwxrwxr-x 2 mana mana 80 lis 8 18:37 raz/
-rw-rw-r-- 1 mana mana 224897 lis 8 20:43 sablon_a_fp.odp
-rw-rw-r-- 1 mana mana 909921 lis 8 19:09 'smime (1).p7m'
-rw-rw-r-- 1 mana mana 70996 lis 8 14:45 smime.p7m
drwxrwxr-x 2 mana mana 60 lis 8 19:23 templates/
-rw-rw-r-- 1 mana mana 8939 lis 5 19:53 text.txt
-rw-rw-r-- 1 mana mana 1314102 lis 8 19:22 Ticket-2021110865804549-TicketID-41297-TempID-42345.eml
```

```
./raz:
total 8
drwxrwxr-x 2 mana mana 80 lis 8 18:37 ./
drwxrwxrwt 4 root root 420 lis 9 00:39 ../
-rw-rw-r-- 1 mana mana 5 lis 8 18:37 dva.html
-rw-rw-r-- 1 mana mana 44 lis 8 18:37 raz.html
```

```
./templates:
total 948
drwxrwxr-x 2 mana mana 60 lis 8 19:23 ./
drwxrwxrwt 4 root root 420 lis 9 00:39 ../
-rw-rw-r-- 1 mana mana 968704 lis 8 19:23 Vertone1121098.img
```

```
ll -R | pz 'Path(s).suffix'
.pem
.pem
.pem
.pem
.mkv
.kate-swp
.tmp
.html
.otp
.odp
.p7m
.p7m
.txt
.eml
.html
.html
.img
```

```
ll -R | pz 'Path(s).suffix' | pz --end 'Counter(lines).most_common'
```

|           |   |   |
|-----------|---|---|
| .pem      | 4 |   |
| .html     | 3 |   |
| .p7m      | 2 |   |
| .mkv      | 1 |   |
| .kate-swp |   | 1 |
| .tmp      | 1 |   |
| .otp      | 1 |   |
| .odp      | 1 |   |
| .txt      | 1 |   |
| .eml      | 1 |   |
| .img      | 1 |   |

```
ll -R | pz 'Path(s).suffix'
```

|           |
|-----------|
| .pem      |
| .pem      |
| .pem      |
| .pem      |
| .mkv      |
| .kate-swp |
| .tmp      |
| .html     |
| .otp      |
| .odp      |
| .p7m      |
| .p7m      |
| .txt      |
| .eml      |
| .html     |
| .html     |
| .img      |



# Děkuji za pozornost

<https://github.com/CZ-NIC/pz>

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