

Python, The Joyful Parts

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Python is pure delight

- cool syntax
- superpowers
- no main function to begin with

C++

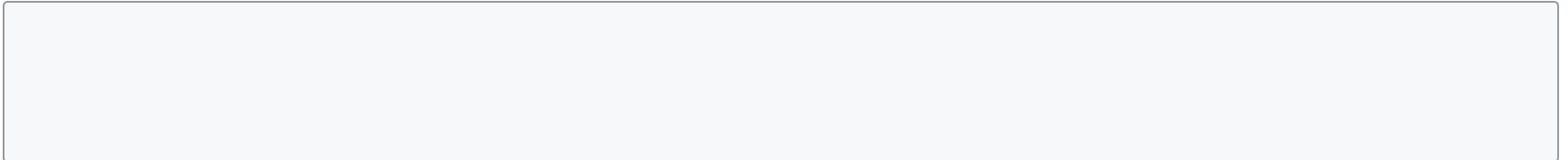
```
#include <iostream>
using namespace std;
```

```
int main() {
    // code here
}
```

Java

```
public class MyJavaProgram {  
    public static void main(String []args) {  
        // code here  
    }  
}
```

Python



Popularity

- Most wanted language
- 3rd most popular
if you remove html, css, sql and bash
(1st js, 2nd Java)
- confirmed 3rd by being 3rd loved

source: [SO survey 2018](#)

Print yeah, but feature packed! [1]

- normal

```
print(1)
```

- many

```
print(1, 2, 3, 4)  
# 1 2 3 4
```

- different data types with no casting

```
print(1, 'a', [1, 2, 3])
```


Print yeah, but feature packed! [2]

- cool control

```
print(1, 2, end=' ')\nprint(3, 4)\n# 1 2 3 4
```

- even nicer

```
print(1, 2, 3, 4, sep='+')\n# 1+2+3+4
```

Print yeah, but feature packed! [3]

std output next door

- normal

```
print(1, 2, file=sys.stdout)
```

- redirect to file

```
print(1, 2, file=open('log.txt', 'w+'))
```

- since stream, IO concepts integrated

```
print(1, 2, file=open('log.txt', 'w+'), flush=True)
```

Variables, candy enough to be mentionned here [1]

- multiple assignment

```
x, y, z = 1, 2, 3
```

- where py stands out

```
a, *x = 0, 1, 2, 3  
# a -> 0, x -> [1, 2, 3]
```

- middle

```
a, *x, b = 0, 1, 2, 3  
# x -> [1, 2]
```

Variables, candy enough to be mentionned here [2] - variable swapping

- C++

```
#include <iostream>
using namespace std;
int main()
{
    int a = 5, b = 10, temp;
    temp = a;
    a = b;
    b = temp;
    return 0;
}
```

- python

```
a, b = 4, 5
a, b = b, a
```

Variables, candy enough to be mentionned here [3]

- multiline string in variable without \n

```
x = """  
<div>  
    <a href="#">python.org</a>  
</div>  
"""
```

- same assignment

```
x = y = z = 0
```

Printing own file content, a two-liner

- the 2 lines below prints the file content

```
with open(__file__) as f:  
    print(f.read())
```

loooops [1]

- iterating over elements

```
fruits = ['apple', 'orange', 'apple']  
for fruit in fruits:  
    print(fruit)  
  
# apple  
# orange  
# apple
```

- range

```
for i in range(5):  
    print(i, end=' ')  
  
# 0 1 2 3 4
```

loops [2]

- more control

```
for i in range(5, 15, 2):  
    print(i, end=' ')  
# 5 7 9 11 13
```

- indexing: same spirit

```
x = 'abcdefghijklmnopqrstuvwxyz'  
print(x[5:15:2])  
# fhjln
```


A fact on bool

- True equals one

```
if True == 1:  
    print('ok')  
# ok
```

- we can add

```
x = True + False  
# 1
```

- mix

```
x = True + 1 + 2 + 3  
# 7
```

lists and strings [1]

- reverse list or ... string

```
'abc'[::-1]  
# cba
```

- easy palindrome check

```
def p(word):  
    if word == word[::-1]:  
        return True  
    return False
```

lists and strings [2]

- populating lists

```
x = [i for i in range(5)]  
# [0, 1, 2, 3, 4]
```

- even numbers generation

```
x = [i for i in range(10) if i%2 == 0]  
# [0, 2, 4, 6, 8]
```

lists and strings [3]

useful in-builts

- sum

```
sum([1, 2, 3])  
# 6
```

- max

```
max([1, 3, 5, 2, 9, 12])  
# 12
```

- count

```
x = [1, 2, 3, 1, 4, 5].count(1)  
# 2
```

lists and strings [4]

- custom checks

```
def check(x):  
    if x > 15:  
        return True  
    return False  
  
x = [check(i) for i in range(20)]  
# [False, ..., True, True]
```

- getting count at the same time

```
x = sum([check(i) for i in range(20)])  
# 4
```

lists and strings [5]

- but simple checks are easy

```
x = 5  
print(0 < x)  
# True
```

- previous example

```
x = sum([i > 15 for i in range(20)])
```

- also in between

```
x = sum([ 0 > i > 15 for i in range(20)])
```

lists and strings [5]

- list to string

```
x = ['a', 'b', 'c']  
string = '-'.join(x)  
# a-b-c
```

- convert integer list to string

```
# [str(i) for i in x]  
  
x = [1, 2, 3]  
string = '-'.join([str(i) for i in x])  
# 1-2-3
```