

# Python beginners cheatsheet

## Interact with the user (*input* and *output*)

Print a message

```
print('Hello, world!')
```

Print values using an f-string

```
ndays = 365  
print(f'There are {ndays} in a year')
```

Asking the user for a string

```
name = input('What is your name? ')
```

Asking the user for a whole number (an integer)

```
num = int(input('Enter a number: '))
```

## Decide between options

Decide to run block (or not)

```
x = 3  
if x == 3:  
    print('x is 3')
```

Decide between two blocks

```
mark = 80  
if mark >= 50:  
    print('pass')  
else:  
    print('fail')
```

Decide between many blocks

```
mark = 80  
if mark >= 65:  
    print('credit')  
elif mark >= 50:  
    print('pass')  
else:  
    print('fail')
```

- ▶ elif can be used without else
- ▶ elif can be used many times

Are two values equal?

```
x == 3
```

⚠ two equals signs, not one

Are two values not equal?

```
x != 3
```

Less than another?

```
x < 3
```

Greater than another?

```
x > 3
```

Less than or equal to?

```
x <= 3
```

Greater than or equal to?

```
x >= 3
```

Decide to run block (or not)

```
True or False
```

## String manipulation

Compare two strings

```
msg = 'hello'  
if msg == 'hello':  
    print('howdy')
```

Is a string in another string?

```
if 'how' in msg:  
    print('try')
```

Not in another string?

```
if 'try' not in msg:  
    print('do')
```

Replace a character or string

```
msg.replace('l', 'X')
```

Length of a string

```
len('hello')
```

Get numeric representation

```
ord('a')
```

Decode number to character

```
chr(97)
```

Get first character in a string

```
msg[0]
```

⚠ position (*index*) starts from 0

Get third character in a string

```
msg[2]
```

Get last character in a string

```
msg[-1]
```

## Text (*strings*)

Single quoted

```
'hello'
```

Double quoted

```
"credit"
```

⚠ strings and integers cannot be added together

```
'Hello' + 4 ❌
```

```
'Hello' + str(4) ✅
```

Add (*concatenate*) strings

```
'Hello' + 'World'
```

Multiply string by integer

```
'Echo...' * 4
```

Convert string to integer

```
int('365')
```

## Variables

Creating a variable

```
celsius = 25
```

Using a variable

```
celsius * 9/5 + 32
```

## Whole numbers (*integers*)

Addition and subtraction

```
365 + 1 - 2
```

Multiplication and division

```
25 * 9/5
```

Powers (*2 to the power of 8*)

```
2 ** 8
```

Convert integer to string

```
str(365)
```

## Repeat a block (a fixed number of times)

Repeat a block 10 times

```
for i in range(10):  
    print(i)
```

Sum the numbers 0 to 9

```
total = 0  
for i in range(10):  
    total = total + i  
    print(total)
```

Repeat a block over a string

```
for letter in 'word':  
    print(letter)
```

▶ each repeat is called an *iteration*

Count from 0 to 9

```
range(10)
```

⚠ range starts from 0 and goes up to, *but not including*, 10

Count from 1 to 10

```
range(1, 11)
```

Count from 10 down to 1

```
range(10, 0, -1)
```

Count 2 at a time to 10

```
range(0, 11, 2)
```

## Functions and comments

Defining a function

```
def hello():  
    print('hello')
```

Calling a function

```
hello()
```

Returning a value

```
def fortyfour():  
    return 44
```

⚠ add comments to your code to make it easier to read

```
# converts kg to g
```

Functions with parameters

```
def multiply(a, b):  
    return a * b
```

Passing in arguments

```
multiply(1, 2)
```

Using the returned value

```
x = multiply(1, 2)  
if x < 2:  
    print('less')  
elif x > 2:  
    print('more')  
else:  
    print('equal')
```