

1. Recap  
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2. Basic Operators  
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3. Branching  
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# KOLT Python

## Basic Operators & Branching

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# KOLT



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# Agenda

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2. Basic Operators

3. Branching



# Comments

```
# Single line comments start with a '#'  
  
"""  
Multiline comments can be written between  
three "s and are often used as function  
and module comments.  
"""  
print('Hello, stranger!')
```

Python will basically ignore comments, they are purely written **for humans!**

# Variables

Type	Explanation	Examples
<code>int</code>	represent <b>integers</b>	3, 4, 17, -10
<code>float</code>	represent <b>real numbers</b>	3.0, 1.11, -109.123123
<code>bool</code>	represent <b>boolean</b> truth values	True, False
<code>str</code>	A sequence of characters.	'Hello', '', '3'
<code>NoneType</code>	special and has one value, None	None

- How to create a variable? `variable_name = value`
- How about types? use `type()`
- Can a variable change type? **Yes!** Just assing a new value with any type.
- What if we if want to convert a value between types, i.e, '2' → 2



# Casting

- `int('2') → 2`
- Any possible reasons for casting? -taking user input -reading numbers from a file?
- Can we cast every value to every type? **NO!** try `int('hello')`

## Console I/O(Input/Output)

**`print(*args, sep=' ', end='\n')`**

- Can take arbitrary number of arguments
- Separates elements with space by default
- Adds newline character '`\n`' to end by default

**`input([prompt])`**

- Prints the prompt to Console
- Program is paused until user enters something
- **returns an `str` object!**



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# 'Falsy' values
bool(None) # => False
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bool(0) # => False
bool(0.0) # => False
bool('') # => False
# Empty data structures
bool([]) # => False
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```
# Everything else is 'truthy'
bool(-100000) # => True
bool('False') # => True
bool(3.14) # => True
bool(int) # => True
# Nonempty data structures
bool([1, 'a', []]) # => True
bool([False]) # => True
```

## bool Operators

How to represent logical operations in Python? (and, or, not)

A	B	A or B	A and B	not A
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## WHY?





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Logical operators are evaluated in this order:

1. not
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False and X  $\Rightarrow$  **False**

Python is smart enough to take advantage of this!

```
1/0 # => ZeroDivisionError
True or 1/0 # => True
False and 1/0 # => False
1/0 or True # => ZeroDivisionError
1/0 and False # => ZeroDivisionError
```

# Arithmetic Operators

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- `+`: Addition
- `-`: Subtraction
- `*`: Multiplication



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Division



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- `*`: Multiplication
- `/`: Division
- `//`: Floor(integer)  
Division
- `%`: Modulo





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These operations are applicable on Numeric types: `int` and `float`

- `+`: Addition
- `-`: Subtraction
- `*`: Multiplication
- `/`: Division
- `//`: Floor(integer)  
Division
- `%`: Modulo
- `**`: Power

```
3.2 + 1.4 # => 4.6
3.2 - 1 # => 2.2
3.2 * 1.2 # => 3.84
3.5 / 1.5 # => 2.3333333333333335
3.5 // 1.5 # => 2.0
3.5 % 1.5 # => 0.5
2 ** 10 # => 1024
```

## Branching

```
if <condition>:  
    <expression>  
    <expression>  
    ...
```

```
if <condition>:  
    <expression>  
    <expression>  
    ...  
else:  
    <expression>  
    <expression>  
    ...
```

```
if <condition>:  
    <expression>  
    <expression>  
    ...  
elif <condition>:  
    <expression>  
    <expression>  
    ...  
...  
else:  
    <expression>  
    <expression>  
    ...
```

- <condition> has a **bool** value (True or False)
- Which expressions will be evaluated in which conditions?