

FE-ROS 2021 Python

Sebastjan Šlajpah

Univerza v Ljubljani
Fakulteta za elektrotehniko
Laboratorij za robotiko

sebastjan.slajpah@fe.uni-lj.si

www.robolab.si
www.cobotic.si

<https://www.theconstructsim.com/>

Python 3 for Robotics:

https://www.theconstructsim.com/robotigniteacademy_learnros/ros-courses-library/python-robotics/



Data Types

- Numbers

```
1, 2, 3, 4
```

- Strings

```
'a', 'b', "c", "delo"
```

- Lists

```
list = [1, 2, 3, 'to', 'je', 'seznam']    print(list[0])
```

- Tuples

```
t = (1, 2, 3, 'to', 'je', 'seznam')
```

read-only

- Dictionaries

```
dict = {"a": 3, "b": 0, "c": 1}          print(dict["a"])
```

Aritmetični operatorji

Operator	Name	Example
+	Addition	$1 + 1 = 2$
-	Substraction	$2 - 1 = 1$
*	Multiplication	$2 * 2 = 4$
/	Division	$5 / 2 = 2$
%	Modulus	$5 \% 2 = 1$

Priredilni operatorji

Operator	Example	Same As
=	<code>x = 5</code>	<code>x = 5</code>
+=	<code>x += 3</code>	<code>x = x + 3</code>
-=	<code>x -= 3</code>	<code>x = x - 3</code>
*=	<code>x *= 3</code>	<code>x = x * 3</code>
/=	<code>x /= 3</code>	<code>x = x / 3</code>
%=	<code>x %= 3</code>	<code>x = x % 3</code>

Primerjalni operatorji

Operator	Means	Same As
==	Equal	5 == 5
!=	Not Equal	4 != 5
>	Greater than	5 > 4
<	Less than	4 < 5
>=	Greater than or equal to	5 >= 4
<=	Less than or equal to	4 <= 5

To je komentar

Pogojni stavek

```
if condition_1:
    statement_block_1
elif condition_2:
    statement_block_2
...
elif another_condition:
    another_statement_block
else:
    else_block
```


Zanka

```
counter = 0

while counter < 10:
    ...
    counter += 1
    print(counter)

print("Outside the loop!")
```

FOR stavek

```
for variable in sequence:  
    statement
```

```
for i in range(5):  
    print(i)
```

Prekinitve zanke

- **Break** - prekinje celotno zanko
- **Continue** - prekinje trenutno iteracijo

break: It immediately terminates a loop entirely. Program execution proceeds to the first statement following the loop body.

continue: It immediately terminates the current loop iteration. Execution jumps to the top of the loop, and the condition is re-evaluated to determine whether the loop will execute again or terminate.

Funkcije

```
def myfunction(a, b):  
    C = a + b  
    print("The function myfunction() has been called")  
    return C  
  
C = myfunction(1,2)
```

Objekt

```
class Jedi:
    def __init__(self, name):
        self.jedi_name = name
    def say_hi(self):
        print('Hello, my name is ', self.jedi_name)

j1 = Jedi('ObiWan')
j1.say_hi()
j2 = Jedi('Anakin')
j2.say_hi()
```

Vsaka spremenljivka v objektu se začne s `self`.

Spremenljivke v objektu se obnašajo kot globalne spremenljivke znotraj objekta.