# Opakování - syntaxe v Pythonu a základní konstrukce

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## 1. Variables - Proměnné

*Try to come up with the answers to this part first, then you can try in python.*
*Na otázky v této části byste měli nejdřív odpovědět z hlavy, potom to si můžete vyzkoušet v pythonu.*

1) Data dělíme v pythonu podle typu. Jaké typy znáte? Znáte nějaké funkce, které mezi typy umí převádět? (Např. Funkce, která udělá z řetězce číslo..)

Data types – integers, strings, booleans (True - False), float, None
Num = 3
Word = "hello"

Data structures – arrays, tuple, dictionaries, sets

Constructions of python – if, else, cycles, function

Standard libraries – print(), input(), max()

User defined structures

2) Operace - Podívejte se na následující kód. Co bude po provedení operací v proměnných E, F a G?

A = 3
B = 5
C = "3"
D = "5"

E = A + B -> 8
F = C + D -> concatenation "35"
G = A + C -> error

## 2. Conditions - Podmínky

*Try to come up with the answers to this part first, then you can try in python.*

1) What numbers read from user input will satisfy the condition below?
Jaká čísla, načtená z uživatelského vstupu, splní následující podmínku?

```
x= int(input("Write a number: "))

if x % 2 == 0 and x % 3 == 0:
        print(x)
```

Numbers divisible by 6

2) What numbers read from user input will satisfy the condition below?

```
x= int(input("Write a number:  "))

if x <= -1 or x > 5:
        print(x)
```

(-inf, -1] or (5, inf)

*3) What numbers read from user input will satisfy the condition below? Try to come up with a formula.

```
X = int(input("Write a number: "))

if x % 2 == 1 and x % 3 == 2:
        print(x)
```

6x – 1

2, 5, 8, 11, 14, 17

5, 11, 17..

*If you finished this part send me "2" to the chat.*

## 3. Cycles – Cykly

*You will be writing code in this part.*

*In every task, write a cycle in python to solve the task.*

1) Print numbers from 0 to 10.

```
For i in range(11):
    Print(i)

I = 0
While I <= 10:
    Print(i)
    I += 1
```

2) Print only odd (liché) numbers from 0 to 10.

```
For i in range(11):
    If i % 2 == 1:
        Print(i)
```

3) Print numbers from 10 to 0.

```
X = 10
While x >= 0:
    Print(x)
    x -= 1

For i in range(10, -1, -1):
    Print(i)
```

*4) Print first 10 numbers of the sequence 1, -1, 2, -2, 3, …

```
For i in range(1, 6):
    Print(i)
    Print(-i)
```

## 4. Arrays – Pole

*You will be writing code in this part.*

*In all tasks work with the following array:*
A = [2, 4, 7, 5, 1, 6, 9]

1) Print the second element of the array.

```
Print(A[1])
```

2) Print the last element of the array

```
Print(A[6])
Print(A[len(A) - 1])
Print(A[-1])
```

*If you finished this part send me "4" to the chat.*

## 5. Arrays and cycles

*You will be writing code in this part.*

*In all tasks work with the following array:*
A = [2, 4, 7, 5, 1, 6, 9]

*Use cycles to solve the following tasks*

1) Print all elements of array A

2) Print only odd elements: 7, 5, 1, 9

3) Print only elements at even indexes: 2, 7, 1, 9 (indexes: 0, 2, 4, 6)

4) Print all elements but in reverse order: 9, 6, 1, 5, 7, 4, 2

*5) Reverse the array in place (without creating new array): A = [9, 6, 1, 5, 7, 4, 2]

*If you finished this part send me "5" to the chat.*