

# Programování 1: Seznamy

Martin Mareš

mj@ucw.cz

Katedra Aplikované Matematiky  
MFF UK Praha

2024

# Seznamy a jejich indexování

```
>>> cisla = [11, 22, 33, 44, 55]
```

```
>>> cisla[0]
```

```
11
```

```
>>> cisla[2]
```

```
33
```

```
>>> cisla[-1]
```

```
55
```

```
>>> len(cisla)
```

```
5
```

# Vnořené seznamy

```
>>> matice = [[11, 12, 13], [21, 22, 23]]
```

```
>>> matice[0]
```

```
[11, 12, 13]
```

```
>>> matice[0][2]
```

```
13
```

# Cyklus for

```
>>> slova = ["mňau", "haf", "kvák"]
>>> for x in slova:
...     print(x)
mňau
haf
kvák

>>> for x in range(1, 5):
...     print(x)
1
2
3
4

>>> for i in range(len(x)):
...     print(x[i])
```

# Operace se seznamy

```
>>> slova = ["mňau", "haf", "kvák"]
>>> slova.append("íá")
>>> slova
['mňau', 'haf', 'kvák', 'íá']

>>> [1, 2] + [3, 4, 5]
[1, 2, 3, 4, 5]

>>> [0] * 5
[0, 0, 0, 0, 0]
```

## Chyták: proměnné na seznamy jen odkazují!

```
>>> x = [1, 2, 3]
>>> y = x
>>> x[2] = 9
>>> y
[1, 2, 9]

>>> m = [[0] * 4] * 3
>>> m
[[0, 0, 0, 0], [0, 0, 0, 0], [0, 0, 0, 0]]

>>> m[0][0] = 1
>>> m
[[1, 0, 0, 0], [1, 0, 0, 0], [1, 0, 0, 0]]
```

# Vypsání čísel pozpátku

```
#!/usr/bin/env python3
# Načítá čísla ze vstupu ukončená -1,
# vypíše je pozpátku

seznam = []

while True:
    x = int(input())
    if x == -1:
        break
    seznam.append(x)

for i in range(len(seznam)):
    print(seznam[-i-1])
```

# Něco navíc o generátorech

```
>>> range(5)
```

```
range(0, 5)
```

```
>>> list(range(5))
```

```
[0, 1, 2, 3, 4]
```

```
>>> list(range(2, 20, 3))
```

```
[2, 5, 8, 11, 14, 17]
```

```
>>> list(range(10, 0))
```

```
[]
```

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

```
[10, 9, 8, 7, 6, 5, 4, 3, 2, 1]
```