

TEXT

\*.py  
\*.cpp

LEXIKALNI ANALIZA →

SYNTAKTICKA ANALIZA

for x in range(10):  
~~~~~



GRAMATIKA:

SEMANTICKA ANALIZA

$E \rightarrow \langle \text{číslo} \rangle$

$E \rightarrow E + E$

$E \rightarrow E * E$

$E \rightarrow (E)$

1+3

"ahoj" / 2

"ahoj" \* 2

SYNTAX ERROR?

10+5 ;  
~~~~~

12\*1+4

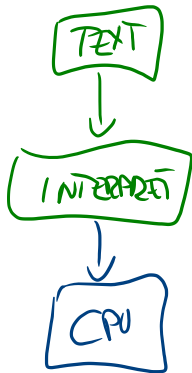
\*5

5\*  
~~~~~  
(číslo)

INTERPRET

VS

PREKLADAC



PYTHON



C, C++

$4 * 5 \rightarrow 20$

→ NÍZKO ÚROVNĚVÝ JAZYK

C, FORTRAN

→ VYSOKO ÚROVNĚVÝ JAZYK

PYTHON, JAVA, JS

C#, R

"abj" + "svete"  
R1                      R2

```
L1 = LEN(R1)
L2 = LEN(R2)
R3 = ALLOC(L1 + L2 + 1)
ZAPIS(R1, R3)
ZAPIS(R2, R3 + L1)
ZAPIS KONEC RETENCE
```

→ CPU

→ INSTRUKCE

PROJEKČNÁ

↳ DATOVÝ TYP

↳ VEĽIKOSŤ

↳ OPERACE

↳ REPREZENTÁCIA V PAŇETI

(RAM jednotky GB)  
DISK jednotky TB)

INT

4B = 32 bit

{0,1}<sup>32</sup>

$2^{32} = 4294967296$

FLOAT

C

4B

,

DOUBLE

C

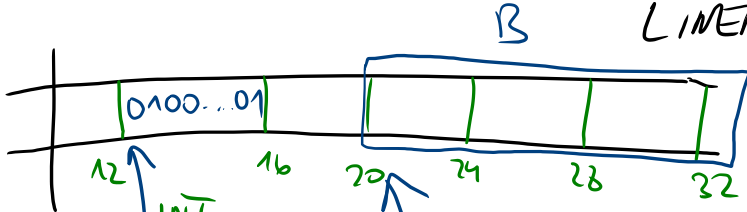
8B

PYTHON

FLOAT

8B

POLE (SEZNAM)



LINEARNI MODEL PAMETI

$$\text{add } B[0] = 1. \text{ punkt} = 20$$

$$\text{add } B[1] = 24$$

INDEXACE

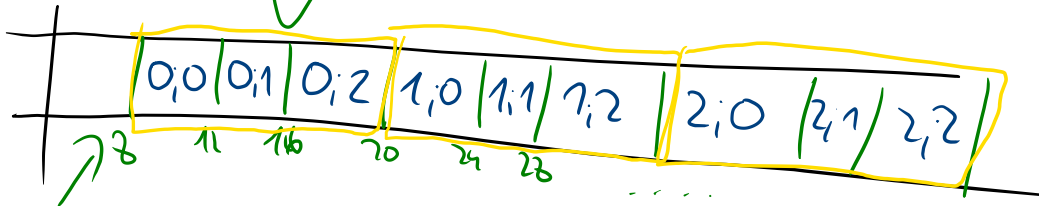
INT B[3]

$$\text{add } B[i] = \underset{20}{\text{add } B} + i \cdot \underset{4 \cdot B}{|D|}$$

2D C[N][N]

C[0][1]

N=3



C INDEXACE ?

$$\text{add } C[i][j] = \text{add } C + \underbrace{i \cdot N \cdot |D|}_{\text{r\u00e4dek}} + \underbrace{j \cdot |D|}_{\text{sl\u00e4pcec}}$$

$$0! = 1$$

$$n! = n \cdot (n-1)!$$

$$n! = \prod_{i=1}^n (i)$$

CHYKUS:

```
F(N): IMPERATIVNI  
R = 1 PARADIGMA  
FOR I = 1 TO N:  
    R *= I  
RETURN R
```

$$\sum_{i=1}^3 i^2 = 1^2 + 2^2 + 3^2$$

$$\prod_{i=1}^3 i^2 = 1^2 \cdot 2^2 \cdot 3^2$$

REKURZE: FUNKCIONALNI

```
F(N):  
IF N == 0:  
    RETURN 1 P.  
RETURN N * F(N-1)
```

$\text{MAP}(F, [1, 2, 3]) \rightsquigarrow [F(1), F(2), F(3)]$

$B = []$   
FOR  $x$  IN  $[1, 2, 3]$ :  
     $B.$ APPEND( $F(x)$ )