

# Homework\_1 Coinis

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## Pitanja:

### 1. Zbog čega postoje različiti tipovi podataka kod programskih jezika?

To optimize the operation of software and hardware (float, int) and the distribution of data values by type (string - str, bool - True/False)

### 2. Da li postoji još jedan nivo apstrakcije iznad viših programskih jezika? Objasniti, i u kontekstu ovog pitanja obrazložiti šta predstavlja riječ apstrakcija.

- a) No
- b) Representations of something that hides implementation details.  
For example , functions , they hide the insides of the function and a person can simply apply the function to something

### 3. Zbog čega se koriste varijable u programiranju?

For storing various types of data

### 4. Šta znači da je string immutable? Zbog čega je u većini programskih jezika važi da je string immutable?

- a) immutable data type means that its value cannot be changed after creation, any change creates a new row.
- b) Memory Optimization, Code security

### 5. (Izrazi) Za date izraze šta će da bude izlaz

- 1.  $4 * 2 > 8$  and  $(3 + 5) / 2 == 4$  - **True**
- 2.  $(-5 > 3$  and  $2 < 1)$  and  $7 + 3 == 10$  - **False**
- 3.  $\text{len}(\text{"abc"}[0:2]) < \text{len}(\text{"abc"})$  - **True**
- 4.  $3 ** 2 + 4 > 10$  and not  $(4 \% 2 == 0$  and  $7 // 3 == 2)$  - **False**
- 5.  $(8 // 3 + 6 \% 2) == 0$  or 'a' not in 'aeiou' - **False**

### 6. (Stringovi) Za data pitanja pokušajte da date kratke i jasne odgovore:

1. Za string `s = "ispit"` kako biste promijenili string tako da nova vrijednost bude "popravni ispit" (ne koristiti ugrađene funkcije i dodatne varijable)

`s = "popravni ispit"`

2. Poznato je da je `s = "Virtuelna realnost"`. Kako biste izdvojili dio stringa "realnost" koristeći indeksiranje kod stringova.

`print(s[10:])`

3. Poznat je string `s = "Danas je vanredni ispit"`. Šta će biti rezultat za `s[3:-3]` ?  
as je vanredni is

4. Za prethodni string, kako biste prikazali svaki drugi karakter koristeći negativno indeksiranje?  
`s[::-2]`

5. Za prethodni string, kako biste prikazali poslednja tri karaktera koristeći negativno indeksiranje?  
`s[-3:]`

6. Za string parne dužine, kako biste štampali vrijednosti dva srednja elementa koristeći indeksiranje stringova?  
`Middle = s[len(s)//2 - 1 : len(s)//2 + 1]`

7. Za string parne dužine, kako biste štampali vrijednosti drugog i preposljednjeg elementa, spojeno sa srednja dva karaktera?  
`result = s[1] + s[-2] + s[len(s)//2 - 1 : len(s)//2 + 1]`

7. (Liste) Za data pitanja pokušajte da date kratke i jasne odgovore:

1. Zbog čega se koriste liste? Obrazložiti.  
To store a lot of items

2. Ako imamo varijablu `lista = [10, 20, 30, 25, 65, 12]`, i pozovemo Python komandu `len(lista[3:])` šta će biti rezultat.  
25, 65, 12

3. Ako imamo varijablu `lista = [10, 20, 30, 25, 65, 12]`, i pozovemo Python komandu `len(lista[1::2])` šta će biti rezultat.  
20,25,12

4. Šta će biti rezultat za sledeći kod  
`a = [1, 2, 5, 7, -3]`  
`print(a[1:-1])`

Result : 2,5,7

8. Navesti i objasniti 10 ključnih riječi koje ste usvojili tokom prve nedelje praćenja kursa (uživo i online kurs)

1) Which means a higher and lower programming language.

Higher programming language is more abstract and closer to a natural language.

Lower programming language is closer to machine code and provides direct control over hardware resources.

2) data types int, str, float

int - integers

str - string values

float - floating point numbers

bool – True/False

3) Basic tasks in Python

print(): Used to output information to standard output.

range(): Creates a sequence of numbers in the specified range.

input(): Used to receive input from the user.

4) List - data type that represents a set of ordered collections of elements.

5) "Variable" are named places in memory that are used to store data.

6) conditional statements if, elif, and else.

**if** checks the first condition, **elif** checks additional conditions, and **else** is executed if none of the **if** or **elif** conditions are true.

7) Cycles while and for

The **while** loop repeats a block of code as long as the specified condition is true, and the **for** loop executes a block of code for each element in the sequence.

8) Why do we use Python

a. It has a fairly wide application

b. Has a very good developer community (quickly find a solution to the problem)

c. Has a large number of packages that greatly simplify application development

d. It is quite intuitive and can be quickly mastered

e. It is used in various fields : AI ...

9) library is a collection of functions that are used by developers to simplify the creation of software.

10) Object-oriented programming (OOP) is an approach in which a program is considered as a set of objects interacting with each other.