ZADANIA

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ZADANIA Z ZAJĘĆ

```
[6] #Napisz program wyswietlajacy na ekranie srednia arytmetyczna dwoch wartosci podanych przez uzytkownika.
    def srednia():
      x = int(input("Podaj pierwsza liczbe:"))
      y = int(input("Podaj druga liczbe:"))
      srednia = (x+y)/2
      print(srednia, "to srednia tych liczb.")
    srednia()
```

```
Podaj pierwsza liczbe:5
Podaj druga liczbe:6
5.5 to srednia tych liczb.
```

```
[7] #Napisz program, ktory wyswietla wartosc pola kwadratu o podanym przez uzytkownika boku.
    def area():
      length = int(input("Square's length:"))
      area = length*length
      print(area)
    area()
```

```
Square's length:15
225
```

```
[18] #Napisz program symulujacy rzut szescioscienna kostka i wyswietlajacy na ekranie wynik rzutu.
     import random
     def dice():
       print(random.randint(1,6))
     dice()
```

```
5
```

```
[20] #Napisz program, ktory wczyta od uzytkownika 10 liczb i zliczy, ile z nich jest parzystych.
     #Wartosc n podawana jest przez uzytkownika na poczatku dzialania programu
     #n = int(input("Podaj ile liczb:"))
     lista = []
     for i in range(1,11):
       i = int(input("Podaj liczbe: "))
       lista.append(i)
     counter = 0
     for number in lista:
       if number % 2 == 0:
         counter += 1
     print(counter, "liczb jest parzystych")
```

```
Podaj liczbe: 1
Podaj liczbe: 2
Podaj liczbe: 3
Podaj liczbe: 4
Podaj liczbe: 5
Podaj liczbe: 6
Podaj liczbe: 7
Podaj liczbe: 8
Podaj liczbe: 9
Podaj liczbe: 10
5 liczb jest parzystych
```

```
[26] #Napisz program, ktory bedzie wczytywal liczby, dopoki ich suma bedzie mniejsza od 100.
     #Po zakonczeniu wczytywania wyswietli, ile liczb zostalo wprowadzonych przed osiagnieciem granicy 100.
     sum = 0
     counter = 0
     n = 100
     for i in range (1,n):
       if(sum<100):
         i = int(input("Wprowadz liczbe: "))
         sum += i
       else:
         break
       counter += 1

     print(counter, "liczb bylo wprowadzonych przed osiagnieciem 100")
```

```
Wprowadz liczbe: 50
Wprowadz liczbe: 10
Wprowadz liczbe: 50
3 liczb bylo wprowadzonych przed osiagnieciem 100
```

```
[27] #Napisz program, ktory wczyta od uzytkownika 10 liczb i umiesci je na liscie.
     #Nastepnie wyswietl wprowadzone wartosci na ekranie oraz policz, ile jej elementow jest liczbami parzystymi.
     lista = []
     for i in range(1,11):
       i = int(input("Podaj liczbe: "))
       lista.append(i)
     counter = 0
     for number in lista:
       if number % 2 == 0:
         counter += 1
     print("Wsrod liczb: ", lista, counter, "liczb jest parzystych")
```

```
Podaj liczbe: 5
Podaj liczbe: 6
Podaj liczbe: 2
Podaj liczbe: 1
Podaj liczbe: 8
Podaj liczbe: 6
Podaj liczbe: 2
Podaj liczbe: 10
Podaj liczbe: 12
Podaj liczbe: 12
Wsrod liczb:  [5, 6, 2, 1, 8, 6, 2, 10, 12, 12] 8 liczb jest parzystych
```

```
Wsrod liczb:  [5, 6, 2, 1, 8, 6, 2, 10, 12, 12] 8 liczb jest parzystych
```

```
#Napisz program, ktory utworzy i wypisze liste z lozona z n losowych liczb z przedzialu <1, 50>.
#Rozmiar listy n podaje uzytkownik.
#Nastepnie program usunie z listy elementy nalezace do przedzialu <11, 20> i wyswietli zmodyfikowana liste.
import random
list = []
n = int(input('Podaj ile liczb: '))
for i in range(1,n):
  list.append(random.randint(1,50))
print(list)
for number in list:
  if number >= 11 and number <= 20:
    list.remove(number)
print(list)
```

```
Podaj ile liczb: 7
[34, 31, 36, 16, 25, 33]
[34, 31, 36, 25, 33]
```

ODPOWIEDZI Z QUIZÓW

Python Functions

Question 1

What will be the output of the following code :

python

```
print type(type(int))
```

- [ ] type \'int\'
- [x] type \'type\'
- [ ] Error
- [ ] 0

Discuss it

Question 1 - **Explanation**

The type() function returns the class of the argument the object belongs to. Thus, type(int) returns which is of the type 'type' object.

Question 2

What is the output of the following code :

python

```
L = [\'a\',\'b\',\'c\',\'d\']
print(\"\".join(L))
```

- [ ] Error
- [ ] None
- [x] abcd
- [ ] ['a','b','c','d']

Discuss it

Question 2 - **Explanation**

"" depicts a null string and the join function combines the elements of the list into a string.

Question 3

What is the output of the following segment :

```
chr(ord(\'A\'))
```

- [x] A
- [ ] B
- [ ] a
- [ ] Error

Discuss it

Question 3 – **Explanation**

ord() function converts a character into its ASCII notation and chr() converts the ASCII to character.

Question 4

What is the output of the following program :

python3

```
y = 8
z = lambda x : x * y
print (z(6))
```

- [x] 48
- [ ] 14
- [ ] 64
- [ ] None of the above

Discuss it

Question 4 – **Explanation**

lambdas are concise functions and thus, result = 6 * 8

Question 5

What is called when a function is defined inside a class?

- [ ] Module
- [ ] Class
- [ ] Another Function
- [x] Method

Discuss it

Question 5 – **Explanation**

Explanation: When a function is defined inside a class then it is called Method. The method is accessible to data that is contained within the class.

Question 6

Which of the following is the use of id() function in python?

- [x] Id returns the identity of the object
- [ ] Every object doesn't have a unique id
- [ ] All of the mentioned
- [ ] None of the mentioned

Discuss it

Question 6 – **Explanation**

Each object in Python has a unique id. The id() function returns the object's id.

Question 7

What is the output of the following program :

python

```
import re
sentence = \'horses are fast\'
regex = re.compile(\'(?P<animal>\\w+) (?P<verb>\\w+) (?P<adjective>\\w+)\')
matched = re.search(regex, sentence)
print(matched.groupdict())
```

- [x] {'animal': 'horses', 'verb': 'are', 'adjective': 'fast'}
- [ ] ('horses', 'are', 'fast')
- [ ] 'horses are fast'
- [ ] 'are'

Discuss it

Question 7 – **Explanation**

This function returns a dictionary that contains all the matches.

Question 8

Suppose list1 is [3, 4, 5, 20, 5, 25, 1, 3], what is list1 after list1.pop(1)?

- [ ] [3, 4, 5, 20, 5, 25, 1, 3]
- [ ] [1, 3, 3, 4, 5, 5, 20, 25]
- [x] [3, 5, 20, 5, 25, 1, 3]
- [ ] [1, 3, 4, 5, 20, 5, 25]

Discuss it

Question 8 – **Explanation**

pop(i) removes the i^{th} index element from the list

Question 9

time.time() returns _____

- [ ] the current time
- [ ] the current time in milliseconds
- [ ] the current time in milliseconds since midnight
- [ ] the current time in milliseconds since midnight, January 1, 1970
- [x] the current time in milliseconds since midnight, January 1, 1970 GMT (the Unix time)

Discuss it

Question 10

Consider the results of a medical experiment that aims to predict whether someone is going to develop myopia based on some physical measurements and heredity. In this case, the input dataset consists of the person's medical characteristics and the target variable is binary: 1 for those who are likely to develop myopia and 0 for those who aren't. This can be best classified as

- [ ] Regression
- [x] Decision Tree
- [ ] Clustering
- [ ] Association Rules

Discuss it

Question 10 – **Explanation**

Regression: It is a statistical analysis which is used to establish relation between a response and a predictor variable. It is mainly used in finance related applications. Decision Tree: Decision tree is a computational method which works on descriptive data and records the observations of each object to reach to a result. Clustering: It is a method of grouping more similar objects in a group and the non-similar objects to other groups. Association Rules: It uses if-then reasoning method using the support-confidence technique to give a result. According to the question Decision Tree is the most suitable technique that can be used to get best result of the experiment.

Python Output Type

Question 1

What is the output of the following program :

Python3

```
def myfunc(a):
    a = a + 2
        a = a * 2
    return a

print myfunc(2)
```

- [ ] 8
- [ ] 16
- [x] Indentation Error
- [ ] Runtime Error

Discuss it

Question 1 – **Explanation**

Python creates blocks of code based on the indentation of the code. Thus, new indent defines a new scope.

Question 2

What is the output of the expression : 3*1**3

- [ ] 27
- [ ] 9
- [x] 3
- [ ] 1

Discuss it

Question 2 – **Explanation**

Precedence of ** is higher than that of 3, thus first 1**3 will be executed and the result will be multiplied by 3.

Question 3

What is the output of the following program :

Python3

```
print \'{0:.2}\'.format(1.0 / 3)
```

- [ ] 0.333333
- [x] 0.33
- [ ] 0.333333:-2
- [ ] Error

Discuss it

Question 3 – **Explanation**

.2 defines the precision of the floating point number.

Question 4

What is the output of the following program :

Python3

```
print \'{0:-2%}\'.format(1.0 / 3)
```

- [ ] 0.33
- [ ] 0.33%
- [x] 33.33%
- [ ] 33%

Discuss it

Question 4 – **Explanation**

The % converts the 0.33 to percentage with respect to 1.0

Question 5

What is the output of the following program :

Python3

```
i = 0
while i < 3:
    print i
    i += 1
else:
    print 0
```

- [ ] 0 1 2 3 0
- [x] 0 1 2 0
- [ ] 0 1 2
- [ ] Error

Discuss it

Question 5 – **Explanation**

The else part is executed when the condition in the while statement is false.

Question 6

What is the output of the following program :

python

```
i = 0
while i < 5:
    print(i)
    i += 1
    if i == 3:
        break
else:
    print(0)
```

- [x] 0 1 2 0
- [x] 0 1 2
- [ ] Error
- [ ] None of the above

Discuss it

Question 6 – **Explanation**

The else part is not executed if control breaks out of the loop.

Question 7

What is the output of the following program :

Python3

```
print \'cd\'.partition(\'cd\')
```

- [ ] ('cd')
- [ ] ('')
- [ ] ('cd', '', '')
- [x] ('', 'cd', '')

Discuss it

Question 7 – **Explanation**

The entire string has been passed as the separator hence the first and the last item of the tuple returned are null strings.

Question 8

What is the output of the following program :

Python3

```
print \'abef\'.partition(\'cd\')
```

- [ ] ('abef')
- [ ] ('abef', 'cd', '')
- [x] ('abef', '', '')
- [ ] Error

Discuss it

Question 8 – **Explanation**

The separator is not present in the string hence the second and the third elements of the tuple are null strings.

Question 9

What is the output of the following program :

Python3

```
print \'abcefd\'.replace(\'cd\', \'12\')
```

- [x] ab1ef2
- [x] abcefd
- [ ] ab1efd
- [ ] ab12ed2

Discuss it

Question 9 – **Explanation**

The first substring is not present in the given string and hence nothing is replaced.

Question 10

What will be displayed by the following code?

Python

```
def f(value, values):
    v = 1
    values[0] = 44
t = 3
v = [1, 2, 3]
f(t, v)
print(t, v[0])
```

- [ ] 1 1
- [ ] 1 44
- [ ] 3 1
- [x] 3 44

Discuss it

Question 10 – **Explanation**

The value of t=3 is passed in funcion f(value,values) , v [list] is passed as values in the same function. The v is stored in values and values[0]=44 , changes t he value at index['0'] in the list hence v=[44,2,3].

Python Data Type

Question 1

Which of these is not a core data type?

- [ ] Lists
- [ ] Dictionary
- [ ] Tuples
- [x] Class

Discuss it

Question 1 – **Explanation**

Class is a user defined data type

Question 2

What data type is the object below ? L = [1, 23, 'hello', 1]

- [x] List
- [ ] Dictionary
- [ ] Tuple
- [ ] Array

Discuss it

Question 2 – **Explanation**

[ ] defines a list

Question 3

Which of the following function convert a string to a float in python?

- [ ] int(x [,base])
- [ ] long(x [,base])
- [x] float(x)
- [ ] str(x)

Discuss it

Question 3 – **Explanation**

float(x) – Converts x to a floating-point number

Question 4

Question 1: Find the output of the following program:

Python3

```
nameList = [\'Harsh\', \'Pratik\', \'Bob\', \'Dhruv\']
pos = nameList.index(\"GeeksforGeeks\")
print (pos * 3)
```

- [ ] GeeksforGeeks GeeksforGeeks GeeksforGeeks
- [ ] Harsh
- [ ] Harsh Harsh Harsh
- [x] ValueError: \'GeeksforGeeks\' is not in list

Discuss it

Question 4 – **Explanation**

The task of the index is to find the position of a supplied value in a given list. In the above program the supplied value is "GeeksforGeeks" and the list is nameList. As GeeksforGeeks is not present in the list, an exception is thrown.

Question 5

Question 1:Find the output of the following program:

Python3

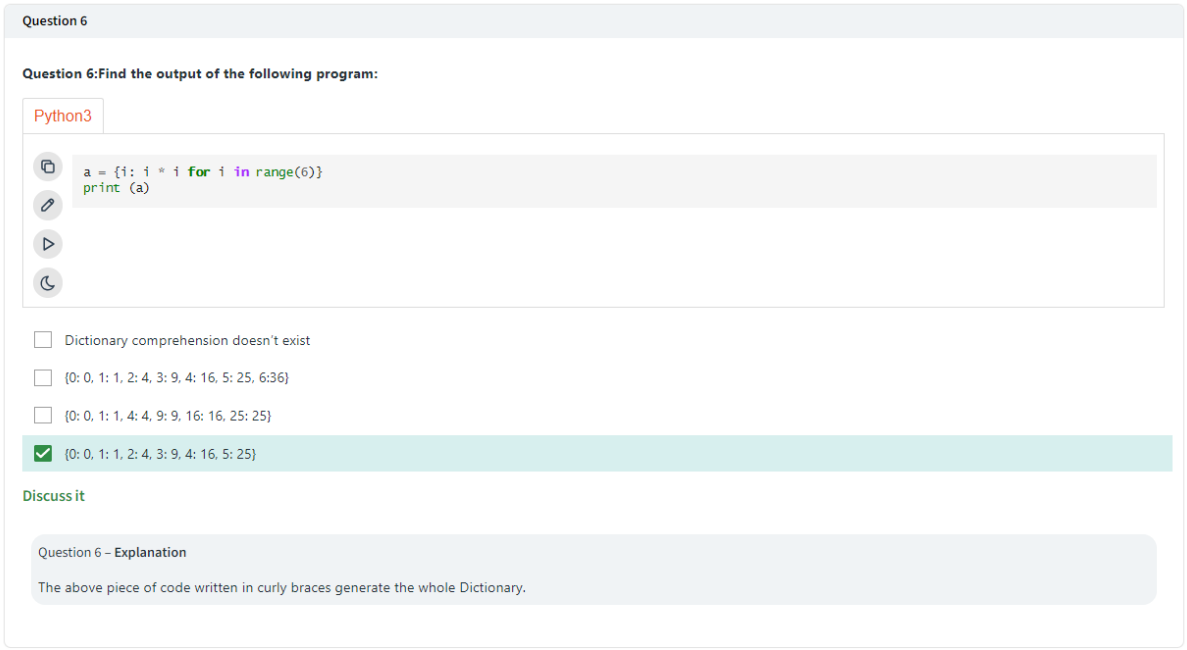
```
D = dict()
for x in enumerate(range(2)):
    D[x[0]] = x[1]
    D[x[1]+7] = x[0]
print(D)
```

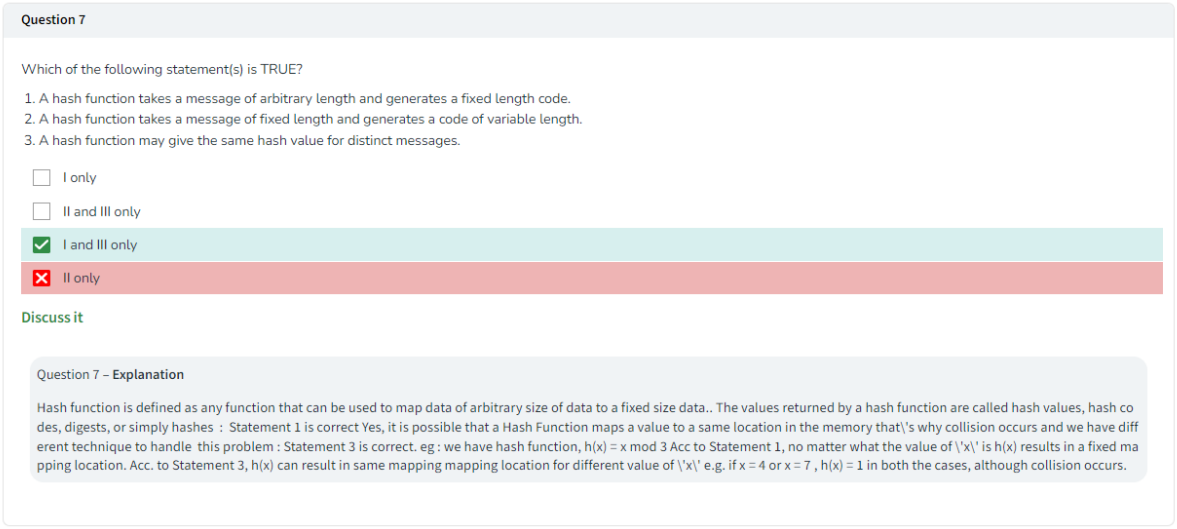
- [ ] {0: 1, 7: 0, 1: 1, 8: 0}
- [ ] {1: 1, 7: 2, 0: 1, 8: 1}
- [x] {0: 0, 7: 0, 1: 1, 8: 1}
- [ ] KeyError

Discuss it

Question 5 – **Explanation**

enumerate() will return a tuple, the loop will have x = (0, 0), (1, 1). Thus D[0] = 0, D[1] = 1, D[0 + 7] = D[7] = 0 and D[1 + 7] = D[8] = 1. **Note:** Dictionary is unordered, so the sequence of the key-value pair may differ in each output.





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