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Basics of Programming in Python

# Dictionaries and Sets

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# Example 71

What is printed on the screen after executing the following program code:

program code

```
1 #Zadatak 71
2
3 dani = {'Januar':31, 'Februar':28, 'Mart':31, 'April':30,
4         'Maj':31, 'Jun':30, 'Jul':31, 'Avgust':31,
5         'Septembar':30, 'Oktobar':31, 'Novembar':30, 'Decembar':31}
6
7 '''II nacin
8 dani = dict(['Januar',31], ['Februar',28], ['Mart',31], ['April',30],
9             ['Maj',31], ['Jun',30], ['Jul',31], ['Avgust',31],
10            ['Septembar',30], ['Oktobar',31], ['Novembar',30], ['Decembar',31])
11 '''
12
13 print(dani['Januar'])
14 print(dani['Februar'])
15 dani['Februar']=29
16 print(dani['Februar'])
17 print()
18 for kljuc in dani:
19     print(dani[kljuc])
```

test program

```
31
28
29
31
29
31
30
31
30
31
31
30
31
30
31
31
30
31
30
31
>>>
```

# Example 72

Compose a program that prints the number of days in it for the loaded month name.

program code

```
1 #Zadatak 72
2
3 dani = {'Januar':31, 'Februar':28, 'Mart':31, 'April':30,
4         'Maj':31, 'Jun':30, 'Jul':31, 'Avgust':31,
5         'Septembar':30, 'Oktobar':31, 'Novembar':30, 'Decembar':31}
6 rec=input("Unesite mesec: ")
7 print("Mesec",rec,"ima",dani[rec],"dana.")
```

test program

```
Unesite mesec: Novembar
Mesec Novembar ima 30 dana.
>>>
```



# Example 73

What is printed on the screen after executing the following program codes:

a) program code

```
1 #Zadatak 73a
2
3 recnik = {'Red': 1, 'Green': 2, 'Blue': 3}
4 for color, value in recnik.items():
5     print(color, 'odgovara', recnik[color])
```

test program

```
Red odgovara 1
Green odgovara 2
Blue odgovara 3
>>>
```

b) program code

```
1 #Zadatak 73b
2
3 recnik={'a':1,'b':2,'c':3,'d':4}
4 if 'a' in recnik:
5     del recnik['a']
6 print(recnik)
```

test program

```
{'b': 2, 'c': 3, 'd': 4}
>>>
```



# Example 74

Compose a program that sorts a dictionary by key, finds the smallest and largest value in the dictionary, and determines the length of the dictionary.

program code

```
1 #Zadatak 74
2
3 recnik={'Marko':19, 'Janko':21, 'Pera':13, 'Mika':25, 'Joca':22}
4
5 print("Sortirani recnik:")
6 for kljuc in sorted(recnik):
7     print(kljuc, recnik[kljuc])
8
9 maks= max(recnik.keys(), key=(lambda k: recnik[k]))
10 mini= min(recnik.keys(), key=(lambda k: recnik[k]))
11 print("Maximum:", recnik[maks])
12 print("Minimum:", recnik[mini])
13
14 print("Duzina recnika:", len(recnik))
```

test program

```
Sortirani recnik:
Janko 21
Joca 22
Marko 19
Mika 25
Pera 13
Maximum: 25
Minimum: 13
Duzina recnika: 5
>>>
```





# Example 76

Compose a program that, based on a dictionary containing the names of countries and their areas, prints the area of the country entered by the user. If the user enters the name of a country that is not in the dictionary, the program gives a corresponding notification.

test program

```
Unesi naziv države: Srbija
Površina države Srbija je 881361 (km2)
Unesi naziv države: Kanada
Površina države Kanada je 9093507 (km2)
Unesi naziv države: Maroko
Nažalost nemamo informacija o: Maroko
Unesi naziv države: Angola
Površina države Angola je 1246700 (km2)
Unesi naziv države:
```

```
>>>
```



# Example 76

program code

```
1 #Zadatak 76
2
3 drzave = {
4 'Rusija':16377742, 'Kanada':9093507, 'Kina':9569901,
5 'Sjedinjene Američke Države':9158960, 'Brazil':8460415,
6 'Australija':7682300, 'Indija':2973193, 'Argentina':2736690,
7 'Kazahstan':2699700, 'Alžir':238741,
8 'Demokratska Republika Kongo':2267048, 'Saudijska Arabija':2149690,
9 'Meksiko':1943945, 'Indonezija':1811569, 'Libija':1759540,
10 'Iran':1531595, 'Mongolija':1553556, 'Peru':1279996, 'Čad':1259200,
11 'Niger':1266700, 'Angola':1246700, 'Mali':1220190,
12 'Junoafrička Republika':1214470, 'Kolumbija':1038700, 'Srbija':881361 }
13 kraj=False
14 while not kraj:
15     nazivDrzave = input("Unesi naziv države: ")
16     if nazivDrzave == '':
17         kraj = True
18     else:
19         if nazivDrzave in drzave:
20             povrsina = drzave[nazivDrzave]
21             print("Površina države", nazivDrzave, "je", povrsina, "(km2)")
22         else:
23             print("Nažalost nemamo informacija o:", nazivDrzave)
24 print()
```



# Example 77

Compose a program that forms two sets S1 and S2 of random one-digit numbers of length n1 and n2 and then determines and prints the union, difference, intersection and complementary intersection of these two sets.

test program

```
n1= 7
n2= 4
Elementi S1: {0, 1, 5, 7}
Elementi S2: {0, 4, 5, 7}
Unija S1 i S2: {0, 1, 4, 5, 7}
Presek S1 i S2: {0, 5, 7}
Razlika S1 i S2: {1}
Razlika S2 i S1: {4}
Komplementarni presek S1 i S2: {1, 4}
>>>
```

program code

```
1 #Zadatak 77
2
3 import random
4 S1=set()
5 S2=set()
6 n1=int(input("n1= "))
7 n2=int(input("n2= "))
8 for i in range(1,n1+1):
9     S1.add(random.randint(0,9))
10 for i in range(1,n2+1):
11     S2.add(random.randint(0,9))
12 print("Elementi S1:", S1)
13 print("Elementi S2:", S2)
14 print("Unija S1 i S2:",S1|S2)
15 print("Presek S1 i S2:",S1&S2)
16 print("Razlika S1 i S2:",S1-S2)
17 print("Razlika S2 i S1:",S2-S1)
18 print("Komplementarni presek S1 i S2:",S1^S2)
```



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# Questions & Answers

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