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Basics of Programming in Python

Arrays

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Example 51

Compose a program that will load an array of n elements:
a) print them in the order in which they were loaded
b) write them in reverse order.

a) program code

```
1  #Zadatak 51a
2
3  n=int(input("Duzina niza n= "))
4  print("Unesite elemente niza: ")
5  niz=list()
6  for i in range(0,n):
7      temp=int(input())
8      niz.append(temp)
9
10 #Verzija 1
11 print("\nElementi niza:",niz)
12
13 #Verzija 2
14 print("\nElementi niza:")
15 for i in niz:
16     print(i)
17
18 #Verzija 3
19 print("\nElementi niza:")
20 for i in range(0,n,1):
21     print(niz[i])
```

test program

```
Duzina niza n= 5
Unesite elemente niza:
7
44
2
9
6

Elementi niza: [7, 44, 2, 9, 6]

Elementi niza:
7
44
2
9
6

Elementi niza:
7
44
2
9
6
>>>
```

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Example 51

b) program code

```
1  #Zadatak 51b
2
3  n=int(input("Duzina niza n= "))
4  print("Unesite elemente niza: ")
5  niz=list()
6  for i in range(0,n):
7      temp=int(input())
8      niz.append(temp)
9
10 print("Obrnuti niz:")
11 for i in range(n-1,-1,-1):
12     print(niz[i])
```

test program

```
Duzina niza n= 5
Unesite elemente niza:
2
6
9
1
4
Obrnuti niz:
4
1
9
6
2
>>>
```

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Example 52

Compose a program for calculating and printing the arithmetic mean of a given sequence (of length n) of integer.

program code

```
#Zadatak 52

n=int(input("Duzina niza n= "))
print("Unesite elemente niza: ")
niz=list()
s=0
for i in range(0,n):
    temp=int(input())
    niz.append(temp)
for i in range(0,n):
    s=s+niz[i]
asr=round(s/n,5)
print("Aritmeticka sredina niza je",asr)
```

test program

```
Duzina niza n= 6
Unesite elemente niza:
5
8
9
3
2
2
Aritmeticka sredina niza je 4.83333
>>>
```

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Example 53

Compose a program that will determine and print the following for an input string (length n) of integers:
a) sum of even numbers, sum of odd numbers and their mean values;
b) sum of positive numbers, sum of negative numbers and their mean values;
c) sum of elements with even indices, sum of elements with odd indices and their mean values.

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Example 53

a) program code

```
1  #Zadatak 53a
2
3  niz=list()
4  sp=sn=par=nep=0
5  n=int(input("Duzina niza n= "))
6  print("Unesite elemente niza: ")
7  for i in range(0,n):
8      temp=int(input())
9      niz.append(temp)
10 for i in range(0,n):
11     if niz[i]%2==0:
12         sp=sp+niz[i]
13         par=par+1
14     else:
15         sn=sn+niz[i]
16         nep=nep+1
17 if par==0:
18     ssp=0
19 else:
20     ssp=sp/par
21 if nep==0:
22     ssn=0
23 else:
24     ssn=sn/nep
25 print("Suma parnih:",sp)
26 print("Suma neparnih:",sn)
27 print("Srednja vrednost parnih:",round(ssp,3))
28 print("Srednja vrednost neparnih:",round(ssn,3))
```

test program

```
Duzina niza n= 7
Unesite elemente niza:
4
3
6
7
2
9
1
Suma parnih: 12
Suma neparnih: 20
Srednja vrednost parnih: 4.0
Srednja vrednost neparnih: 5.0
>>>
```

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Example 53

b) program code

```
1  #Zadatak 53b
2
3  niz=list()
4  sp=sn=poz=neg=0
5  n=int(input("Duzina niza n= "))
6  print("Unesite elemente niza: ")
7  for i in range(0,n):
8      temp=int(input())
9      niz.append(temp)
10 for i in range(0,n):
11     if niz[i]>0:
12         sp=sp+niz[i]
13         poz=poz+1
14     elif niz[i]<0:
15         sn=sn+niz[i]
16         neg=neg+1
17 if poz==0:
18     ssp=0
19 else:
20     ssp=sp/poz
21 if neg==0:
22     ssn=0
23 else:
24     ssn=sn/neg
25 print("Suma pozitivnih:",sp)
26 print("Suma negativnih:",sn)
27 print("Srednja vrednost pozitivnih:",round(ssp,3))
28 print("Srednja vrednost negativnih:",round(ssn,3))
```

test program

```
Duzina niza n= 7
Unesite elemente niza:
-2
4
5
5
9
-1
-4
Suma pozitivnih: 23
Suma negativnih: -7
Srednja vrednost pozitivnih: 5.75
Srednja vrednost negativnih: -2.333
>>>
```

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Example 53

c) program code

```
1  #Zadatak 53c
2
3  niz=list()
4  sp=sn=par=nep=0
5  n=int(input("Duzina niza n= "))
6  print("Unesite elemente niza: ")
7  for i in range(0,n):
8      temp=int(input())
9      niz.append(temp)
10 for i in range(0,n):
11     if i%2==0:
12         sp=sp+niz[i]
13         par=par+1
14     else:
15         sn=sn+niz[i]
16         nep=nep+1
17 if par==0:
18     ssp=0
19 else:
20     ssp=sp/par
21 if nep==0:
22     ssn=0
23 else:
24     ssn=sn/nep
25 print("Suma parni indeksi:",sp)
26 print("Suma neparni indeksi:",sn)
27 print("Srednja vrednost parni indeksi:",round(ssp,3))
28 print("Srednja vrednost neparni indeksi:",round(ssn,3))
```

test program

```
Duzina niza n= 7
Unesite elemente niza:
4
2
5
7
2
1
6
Suma parni indeksi: 17
Suma neparni indeksi: 10
Srednja vrednost parni indeksi: 4.25
Srednja vrednost neparni indeksi: 3.333
>>>
```

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Example 54

Compose a program that, for an entered sequence of real numbers of length n, prints the element of the largest and smallest value, as well as their positions in the sequence.

program code

```
1  #Zadatak 54
2
3  niz=list()
4  n=int(input("Duzina niza n= "))
5  print("Unesite elemente niza: ")
6  for i in range(0,n):
7      temp=int(input())
8      niz.append(temp)
9  maks=niz[0]
10 mini=niz[0]
11 imaks=imini=1
12 for i in range(1,n):
13     if niz[i]>maks:
14         maks=niz[i]
15         imaks=i+1
16     if niz[i]<mini:
17         mini=niz[i]
18         imini=i+1
19 print("Maksimalni element:",maks)
20 print("Pozicija maksimalnog:",imaks)
21 print("Minimalni element:",mini)
22 print("Pozicija minimalnog:",imini)
```

test program

```
Duzina niza n= 7
Unesite elemente niza:
3
2
6
9
1
55
9
Maksimalni element: 55
Pozicija maksimalnog: 6
Minimalni element: 1
Pozicija minimalnog: 5
>>>
```

Example 55

Compose a program that, when entering a sequence of integers of length n, finds the position of the required element or prints a notification that the required element does not exist in the sequence.

program code

```
#Zadatak 55

niz=list()
nadjen=0
n=int(input("Duzina niza n= "))
print("Unesite elemente niza: ")
for i in range(0,n):
    temp=int(input())
    niz.append(temp)
broj=int(input("Trazena vrednost= "))
for i in range(0,n):
    if niz[i]==broj:
        nadjen=1
        print("Vrednost",broj,"ima element",i+1)
if nadjen==0:
    print("Vrednost",broj,"nije pronadjena u nizu!")
```

test program

```
Duzina niza n= 6
Unesite elemente niza:
3
5
6
3
9
11
Trazena vrednost= 3
Vrednost 3 ima element 1
Vrednost 3 ima element 4
>>>
========== RESTART: C:/Users/KORIS
Duzina niza n= 5
Unesite elemente niza:
2
9
4
1
3
Trazena vrednost= 8
Vrednost 8 nije pronadjena u nizu!
>>>
```

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Example 56

Compose a program that, for a loaded sequence of integers A of length n, forms and prints two sequences: sequence V containing negative elements of sequence A and sequence S containing positive elements of sequence A.

program code

```
#Zadatak 56

nizA=list()
nizB=list()
nizC=list()
n=int(input("Duzina niza n= "))
print("Unesite elemente niza A: ")
for i in range(0,n):
    temp=int(input())
    nizA.append(temp)
for i in range(0,n):
    if nizA[i]>0:
        nizB.append(nizA[i])
    elif nizA[i]<0:
        nizC.append(nizA[i])
print("Niz A:")
print(nizA)
print("Niz B:")
print(nizB)
print("Niz C:")
print(nizC)
```

test program

```
Duzina niza n= 8
Unesite elemente niza A:
3
-2
2
-4
0
6
0
8
Niz A:
[3, -2, 2, -4, 0, 6, 0, 8]
Niz B:
[3, 2, 6, 8]
Niz C:
[-2, -4]
>>>
```

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Example 57

Compose a program that will generate a sequence of n random single-digit numbers and calculate the number of occurrences of each number (digits).

program code

```
#Zadatak 57a

import random
niz=list()
brojac=list()
for j in range(0,10):
    brojac.append(0)
n=int(input("Duzina niza n= "))
for i in range(0,n):
    niz.append(random.randint(0,9))
for j in range(0,10):
    for i in range(0,n):
        if niz[i]==j:
            brojac[j]=brojac[j]+1
print("Niz:")
print(niz)
for j in range(0,10):
    print("Cifra =",j,"Broj pojavljivanja =", brojac[j])
```

test program

```
Duzina niza n= 20
Niz:
[6, 5, 7, 1, 6, 2, 7, 0, 0, 7, 1, 6, 0, 9, 8, 3, 1, 2, 5, 9]
Cifra = 0 Broj pojavljivanja = 3
Cifra = 1 Broj pojavljivanja = 3
Cifra = 2 Broj pojavljivanja = 2
Cifra = 3 Broj pojavljivanja = 1
Cifra = 4 Broj pojavljivanja = 0
Cifra = 5 Broj pojavljivanja = 2
Cifra = 6 Broj pojavljivanja = 3
Cifra = 7 Broj pojavljivanja = 3
Cifra = 8 Broj pojavljivanja = 1
Cifra = 9 Broj pojavljivanja = 2
>>>
```

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Example 57

program code (another way)

```
#Zadatak 57b

import random
niz=list()
brojac=list()
for j in range(0,10):
    brojac.append(0)
n=int(input("Duzina niza n= "))
for i in range(0,n):
    niz.append(random.randint(0,9))
for j in range(0,10):
    brojac[j]=niz.count(j)
print("Niz:")
print(niz)
for j in range(0,10):
    print("Cifra =",j,"Broj pojavljivanja =", brojac[j])
```

WBnet

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Questions & Answers

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