Napredno programiranje i programski jezici

11 Python

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23-24/Z
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```python
data = [1, 15, -2, 7, 8]

data1 = []
for num in data:
    data1.append(num ** 2)

print(data)
print(data1)
```

```
[1, 15, -2, 7, 8]
[1, 225, 4, 49, 64]
```

```
data = [1, 15, -2, 7, 8]

data1 = []
for num in data:
    data1.append(num ** 2)

print(data)
print(data1)

data1 = [num ** 2 for num in data]
print(data1)
```

```
[1, 15, -2, 7, 8]
[1, 225, 4, 49, 64]
[1, 225, 4, 49, 64]
```

list comprehension

```
data = [1, 15, -2, 7, 8]

data1 = [num for num in data if num < 0]
print(data1)

data = ["petar", "ivana", "ivan", "ana"]
data1 = [ime for ime in data if "ivan" in ime]
print(data1)


data = ["petar", "ivana", "ivan", "ana"]
data1 = [ime.capitalize() for ime in data]
print(data1)
```

```
[-2]
['ivana', 'ivan']
['Petar', 'Ivana', 'Ivan', 'Ana']
```

```
data = [i for i in range(10)]
print(data)

data = [i **2 for i in range(10)]
print(data)

data = [(x, y) for x in [1, 2, 3] for y in [4, 5, 6]]
print(data)
```

```
[0, 1, 2, 3, 4, 5, 6, 7, 8, 9]
[0, 1, 4, 9, 16, 25, 36, 49, 64, 81]
[(1, 4), (1, 5), (1, 6), (2, 4), (2, 5), (2, 6), (3, 4), (3, 5), (3, 6)]
```

```python
data = [[1, 2, 3], ["a", "b", "c"]]

data = [
    [1, 2, 3],
    ["a", "b", "c"]
]

print(data)
print(data[0][1])
```

```
[[1, 2, 3], ['a', 'b', 'c']]
2
```

```python
data1 = [
    ["ime", "prezime"],
    ["Petar", "Petrovic"]
]
print(data1)

data2 = [
    ("ime", "prezime"),
    ("Petar", "Petrovic")
]
print(data2)

data1[0] = ["name", "surname"]
print(data1)

data2[0] = ("name", "surname")
print(data2)

data1[1][0] = "Ivana"
print(data1)

data2[1][0] = "Ivana"
print(data2)
```

```
[['ime', 'prezime'], ['Petar', 'Petrovic']]
[('ime', 'prezime'), ('Petar', 'Petrovic')]
[['name', 'surname'], ['Petar', 'Petrovic']]
[('name', 'surname'), ('Petar', 'Petrovic')]
[['name', 'surname'], ['Ivana', 'Petrovic']]
```

```
data = [1, 15, -2, 7, 8]
data.remove(15)
print(data)

del data[0]
print(data)
```

```
[1, -2, 7, 8]
[-2, 7, 8]
```

Zadatak

Napisati program koji definiše dve matrice i sabira ih. Realizovati sabiranje korišćenjem dve for petlje i korišćenjem LC.

```
studenti = {
    '123/2020':'Petar',
    '456/2019':'Ivana',
    '789/2021':'Ivan'}
print(studenti)

print(studenti['123/2020'])
```

{'123/2020': 'Petar', '456/2019': 'Ivana', '789/2021': 'Ivan'}
Petar

rečnik- promenljivi, skup ključ-vrednost parova

```
print(studenti[123/2020])
print(studenti['abc'])


studenti = {
    '123/2020':'Petar',
    '123/2020':'Petra',
    '456/2019':'Ivana',
    '789/2021':'Ivan'
}
print(studenti)
```

```
{'123/2020': 'Petra', '456/2019': 'Ivana',
'789/2021': 'Ivan'}
```

```python
studenti = {
    '123/2020':'Petar',
    '456/2019':'Ivana',
    '789/2021':'Ivan'
}
print(studenti)

if "123/2020" in studenti:
    print(studenti["123/2020"])
```

```
{'123/2020': 'Petar', '456/2019': 'Ivana',
'789/2021': 'Ivan'}
Petar
```

```python
studenti = {
    '123/2020':'Petar',
    '456/2019':'Ivana',
    '789/2021':'Ivan'
}

for student in studenti:
    print(student)
print()

for student in studenti.items():
    print(student)
print()

for (bri, ime) in studenti.items():
    print (bri, ime)

print()

for bri in studenti:
    print(bri, studenti[bri])
```

```
123/2020
456/2019
789/2021

('123/2020', 'Petar')
('456/2019', 'Ivana')
('789/2021', 'Ivan')

123/2020 Petar
456/2019 Ivana
789/2021 Ivan

123/2020 Petar
456/2019 Ivana
789/2021 Ivan
```

```
def zbir(a, b):
    return a + b

def kolicinik_i_ostatak(a, b):
    q = a // b
    r = a % b
    return (q, r)
```

operacije.py

```
import operacije

c = operacije.zbir(5, 3)
print(c)
q, r = operacije.kolicinik_i_ostatak(5, 3)
print(q, r)
```

```
8
1 2
```

```
def zbir(a, b):
    return a + b

def kolicinik_i_ostatak(a, b):
    q = a // b
    r = a % b
    return (q, r)
```

operacije.py

```
from operacije import zbir

c = operacije.zbir(5, 3)
print(c)
q, r = operacije.kolicinik_i_ostatak(5, 3)
print(q, r)
```

```
f = open("data.txt")
for line in f:
    print(line)
f.close()


f = open("data.txt")
lines = [line for line in f]
print(lines)
f.close()


f = open("data.txt")
lines = [line.rstrip() for line in f]
print(lines)
f.close()
```

```
...

1

0

0
['66\n', '69\n', '69\n', '44\n', '59\n', '58\n',
'67\n', '65\n', '62\n', '66\n', '69\n', '68\n',
'68\n', '66\n',
'62\n', '68\n', '0\n', '51\n', '66\n', '36\n',
'49\n', '44\n', '70\n', '36\n', '46\n', '69\n',
'63\n', '68\n', '64\n', '65\n', '70\n', '70\n',
'65\n', '45\n', '57\n', '62\n', '64\n', '44\n',
'67\n', '69\n', '51\n', '63\n', '58\n', '67\n',
'15\n', '40\n', '70\n', '55\n', '41\n', '26\n',
'67\n', '36\n', '37\n', '36\n', '11\n', '0\n', '0']
['66', '69', '69', '44', '59', '58', '67', '65',
'62', '66', '69', '68', '68', '66', '62', '68', '0',
'51', '66', '36', '49', '44', '70', '36', '46',
'69', '63', '68', '64', '65', '70', '70', '65',
'45', '57', '62', '64', '44', '67', '69', '51',
'63', '58', '67', '15', '40', '70', '55', '41',
'26', '67', '36', '37', '36', '11', '0', '0']
```

```
f = open("data.txt")

data = [line.rstrip() for line in f]
print(data)


data = [int(str) for str in data]
print(data)

print(min(data), max(data))

data = [int(str) for str in data if str != 0]
print(data)

print(min(data), max(data))

avg = sum(data) / len(data)
print(avg)

f.close()
```

```
['66', '69', '69', '44', '59', '58', '67', '65',
'62', '66', '69', '68', '68', '66', '62', '68', '0',
'51', '66', '36', '49', '44', '70', '36', '46',
'69', '63', '68', '64', '65', '70', '70', '65',
'45', '57', '62', '64', '44', '67', '69', '51',
'63', '58', '67', '15', '40', '70', '55', '41',
'26', '67', '36', '37', '36', '11', '0', '0']
[66, 69, 69, 44, 59, 58, 67, 65, 62, 66, 69, 68, 68,
66, 62, 68, 0, 51, 66, 36, 49, 44, 70, 36, 46, 69,
63, 68, 64, 65, 70, 70, 65, 45, 57, 62, 64, 44, 67,
69, 51, 63, 58, 67, 15, 40, 70, 55, 41, 26, 67, 36,
37, 36, 11, 0, 0]
0 70
[66, 69, 69, 44, 59, 58, 67, 65, 62, 66, 69, 68, 68,
66, 62, 68, 51, 66, 36, 49, 44, 70, 36, 46, 69, 63,
68, 64, 65, 70, 70, 65, 45, 57, 62, 64, 44, 67, 69,
51, 63, 58, 67, 15, 40, 70, 55, 41, 26, 67, 36, 37,
36, 11]
11 70
56.27777777777778
```