1

10_1.py - C:/Users/ACER/Desktop/лр10/10_1.py (3.7.9)

File Edit Format Run Options Window Help

```
from random import randint
n = m = 5
mat = []
for i in range(n):
    row = []
    for j in range(m): row.append(randint(1,55))
    mat.append(row)

print('\n'.join([''.join(['%5d'%item for item in row]) for row in mat]))

s = 0
for i in range(n): s += mat[i][i]
print('s =',s/n)
```

Ln: 14 Col: 0

Python 3.7.9 Shell

File Edit Shell Debug Options Window Help

```
>>>
================== RESTART: C:/Users/ACER/Desktop/лр10/10_1.py ==================
   37   16   24   46   41
   11   19   18   46   52
   27   28   39   27    8
   19   21    6   27   23
   42    5   40   37   44
s = 33.2
>>>
```

Ln: 1197 Col: 4

2

10_2.py - C:/Users/ACER/Desktop/лр10/10_2.py (3.7.9)

File Edit Format Run Options Window Help

```
from random import uniform
n = 5
m = 7
mat = []
for i in range(n):
    row = []
    for j in range(m): row.append(uniform(1.0,47.0))
    mat.append(row)

for i in range(n):
    for j in range(m):
        print(round(mat[i][j],1),end='\t')
    print()

ns1 = int(input('Введіть рядок 1-го елемента:'))
ms1 = int(input('Введіть стовпець 1-го елемента:'))

ns2 = int(input('Введіть рядок 2-го елемента:'))
ms2 = int(input('Введіть стовпець 2-го елемента:'))

if 0<=ns1<=n and 0<=ms1<=m and 0<=ns2<=n and 0<=ms2<=m:
    temp = mat[ns1][ms1]
    mat[ns1][ms1] = mat[ns2][ms2]
    mat[ns2][ms2] = temp
else:
    print('Одне або декілька чисел не належать матриці')

for i in range(n):
    for j in range(m):
        print(round(mat[i][j],1),end='\t')
    print()
```

Ln: 26 Col: 37

Python 3.7.9 Shell

File Edit Shell Debug Options Window Help

```
>>>
================== RESTART: C:/Users/ACER/Desktop/лр10/10_2.py ==================
18.2    23.2    11.0    21.4    33.3    19.3    27.8
30.2    18.4    20.7    25.2    41.7    11.7    21.0
37.4    15.1    20.0    28.2    37.5    11.8    2.9
15.4    25.4    11.9    41.2    41.1    2.2     28.8
26.6    43.6    21.7    28.2    41.5    39.8    40.4
Введіть рядок 1-го елемента:2
Введіть стовпець 1-го елемента:3
Введіть рядок 2-го елемента:1
Введіть стовпець 2-го елемента:1
18.2    23.2    11.0    21.4    33.3    19.3    27.8
30.2    28.2    20.7    25.2    41.7    11.7    21.0
37.4    15.1    20.0    18.4    37.5    11.8    2.9
15.4    25.4    11.9    41.2    41.1    2.2     28.8
26.6    43.6    21.7    28.2    41.5    39.8    40.4
>>>
```

Ln: 1226 Col: 4

3

10_3.py - C:/Users/ACER/Desktop/лр10/10_3.py (3.7.9)

File Edit Format Run Options Window Help

```
from random import randint
n = int(input('n -> '))
m = int(input('m -> '))
s = 0
ma = 0
mat = []
for i in range(n):
    row = []
    for j in range(m): row.append(int(input('mat[%i][%i]='%(i,j))))
    mat.append(row)

for i in range(n):
    for j in range(m):
        print(mat[i][j],end='\t')
        if mat[i][j] > ma: ma = mat[i][j]
    s += sum(mat[i])
    print()

print('s   =',s)
print('max =',ma)
```

Ln: 14 Col: 0

Python 3.7.9 Shell

File Edit Shell Debug Options Window Help

```
================== RESTART: C:/Users/ACER/Desktop/лр10/10_3.py ==================
n -> 3
m -> 4
mat[0][0]=1
mat[0][1]=2
mat[0][2]=3
mat[0][3]=4
mat[1][0]=5
mat[1][1]=6
mat[1][2]=7
mat[1][3]=8
mat[2][0]=9
mat[2][1]=10
mat[2][2]=11
mat[2][3]=12
1       2       3       4
5       6       7       8
9       10      11      12
s   = 78
max = 12
>>>
```

Ln: 1247 Col: 4

4

10_4.py - C:/Users/ACER/Desktop/лр10/10_4.py (3.7.9)

File Edit Format Run Options Window Help

```
n = int(input('n -> '))
m = int(input('m -> '))

mat = []
zeros = 0
for i in range(n):
    row = []
    for j in range(m):
        x = (i+j) if i < j else (i**2 - j**2)
        if x == 0: zeros += 1
        row.append(x)
    mat.append(row)

print('\n'.join([''.join(['%5d'%item for item in row]) for row in mat]))
print('Нулів:',zeros)
```

Ln: 17 Col: 0

Python 3.7.9 Shell

File Edit Shell Debug Options Window Help

```
>>>
================== RESTART: C:/Users/ACER/Desktop/лр10/10_4.py ==================
n -> 3
m -> 4
    0    1    2    3
    1    0    3    4
    4    3    0    5
Нулів: 3
>>>
```

Ln: 1255 Col: 4

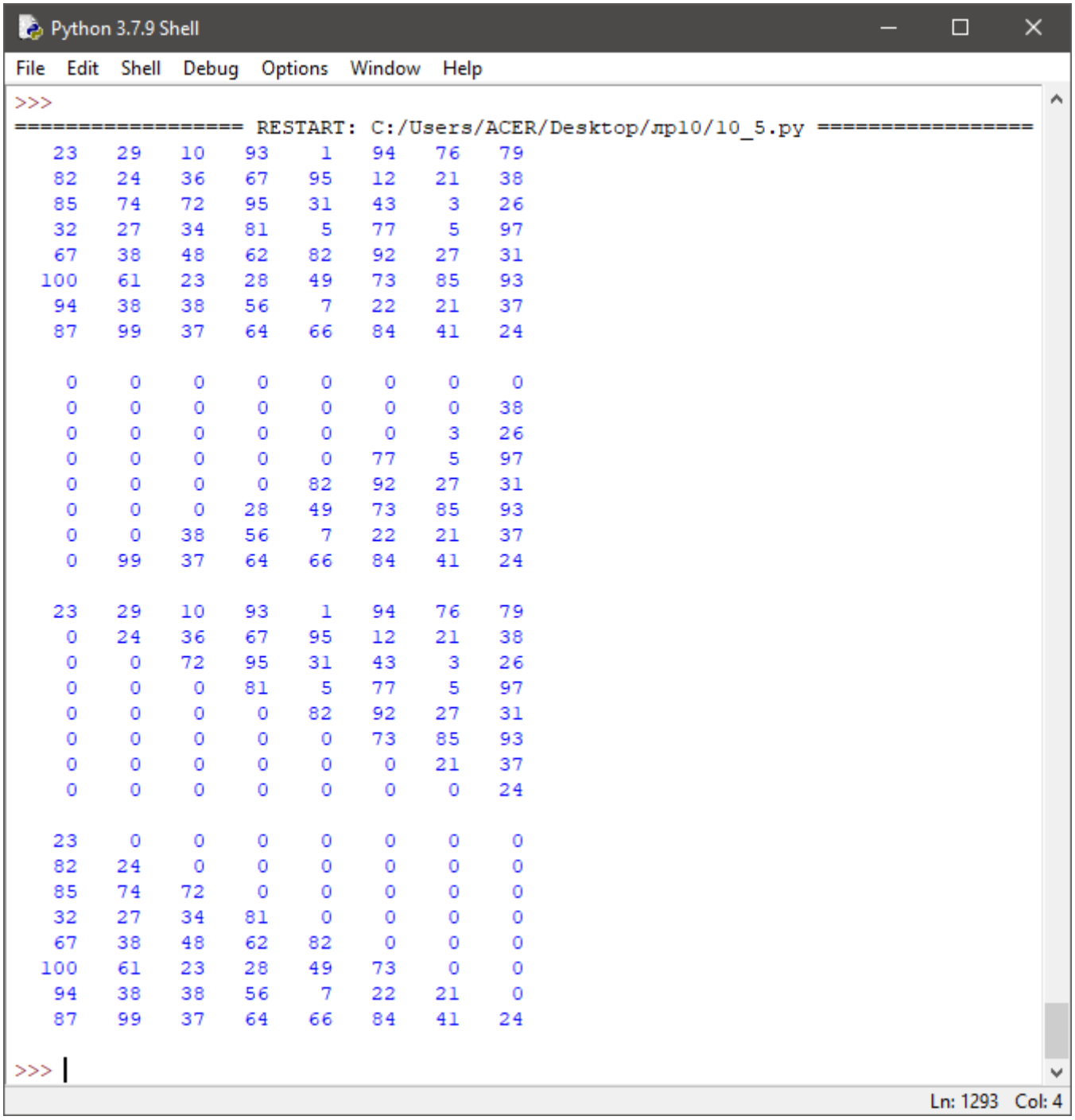
5

10_5.py - C:/Users/ACER/Desktop/лр10/10_5.py (3.7.9)

File Edit Format Run Options Window Help

```
from random import randint
n = m = 8
mat = []
for i in range(n):
    row = []
    for j in range(m):
        row.append(randint(1,100))
    mat.append(row)

mat1 = [row[:] for row in mat]
mat2 = [row[:] for row in mat]
mat3 = [row[:] for row in mat]

print('\n'.join([''.join(['%5d'%item for item in row]) for row in mat]))
print()


for i in range(n):
    for j in range(n-i):
        mat1[i][j] = 0

print('\n'.join([''.join(['%5d'%item for item in row]) for row in mat1]))
print()


for i in range(n):
    for j in range(i):
        mat2[i][j] = 0
print('\n'.join([''.join(['%5d'%item for item in row]) for row in mat2]))
print()


for i in range(n):
    for j in range(i):
        mat3[j][i] = 0
print('\n'.join([''.join(['%5d'%item for item in row]) for row in mat3]))
print()
```

Ln: 13 Col: 0


Python 3.7.9 Shell
File Edit Shell Debug Options Window Help
>>>
========== RESTART: C:/Users/ACER/Desktop/mp10/10_5.py ==========
23 29 10 93 1 94 76 79
82 24 36 67 95 12 21 38
85 74 72 95 31 43 3 26
32 27 34 81 5 77 5 97
67 38 48 62 82 92 27 31
100 61 23 28 49 73 85 93
94 38 38 56 7 22 21 37
87 99 37 64 66 84 41 24
0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 38
0 0 0 0 0 0 3 26
0 0 0 0 0 77 5 97
0 0 0 0 82 92 27 31
0 0 0 28 49 73 85 93
0 0 38 56 7 22 21 37
0 99 37 64 66 84 41 24
23 29 10 93 1 94 76 79
0 24 36 67 95 12 21 38
0 0 72 95 31 43 3 26
0 0 0 81 5 77 5 97
0 0 0 0 82 92 27 31
0 0 0 0 0 73 85 93
0 0 0 0 0 0 21 37
0 0 0 0 0 0 0 24
23 0 0 0 0 0 0 0
82 24 0 0 0 0 0 0
85 74 72 0 0 0 0 0
32 27 34 81 0 0 0 0
67 38 48 62 82 0 0 0
100 61 23 28 49 73 0 0
94 38 38 56 7 22 21 0
87 99 37 64 66 84 41 24
>>>
Ln: 1293 Col: 4