1-6 задания

1.py - G:\САФУ\ЛР9\1.py (3.10.7)

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```
print("Task ", 1)
import numpy as np
X = np.Xeros(15)
print(X)

print("Task ", 2)
X = np.full(8, 3.2)
print(X)

print("Task ", 3)
X = np.Xeros(15)
X[4] = 1
print(X)

print("Task ", 4)
X = np.arange(12,44)
print(X)

print("Task ", 5)
X = np.random.random((3,3,2))
print(X)

print("Task ", 6)
X = np.random.random((12,12))
Xmin, Xmax = X.min(), X.max()
print(Xmin, Xmax)
```

IDLE Shell 3.10.7

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```
Task  1
[0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0
Task  2
[3.2 3.2 3.2 3.2 3.2 3.2 3.2 3.2]
Task  3
[0. 0. 0. 0. 1. 0. 0. 0. 0. 0. 0. 0. 0
Task  4
[12 13 14 15 16 17 18 19 20 21 22 23 24 25 2
 36 37 38 39 40 41 42 43]
Task  5
[[[0.88735571 0.26847949]
  [0.03376373 0.15381118]
  [0.90473623 0.05135745]]

 [[0.03289978 0.50387013]
  [0.24985968 0.19205095]
  [0.73130731 0.10703728]]

 [[0.20369287 0.01797904]
  [0.58051511 0.03819147]
  [0.02871418 0.22689087]]]
Task  6
0.007416197334648267 0.9857054278705009
Task  7
[[0. 0. 0. 0. 0. 0. 0. 0. 0. 0.]
 [0. 1. 1. 1. 1. 1. 1. 1. 1. 0.]
```

7- 9задания

1.py - G:\САФУ\ЛР9\1.py (3.10.7)

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```
print("Task ", 7)
X = np.Xeros((10,10))
X[1:-1,1:-1] = 1
print(X)

print("Task ", 8)
X = np.Xeros((8,8), dtype=int)
X[1::2,::2] = 1
X[::2,1::2] = 1
print(X)

print("Task ", 9)

X = np.tile(np.array([[0,1],[1,0]]), (4,4))
print(X)

print("Task ", 10)
X = np.dot(np.ones((4,2)), np.ones((2,5)))
print(X)

print("Task ", 11)
X = np.arange(11)
X[(4 < X) & (X <= 7)] *= -1
print(X)

print("Task ", 12)
```

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```
Task  7
[[0. 0. 0. 0. 0. 0. 0. 0. 0. 0.]
 [0. 1. 1. 1. 1. 1. 1. 1. 1. 0.]
 [0. 1. 1. 1. 1. 1. 1. 1. 1. 0.]
 [0. 1. 1. 1. 1. 1. 1. 1. 1. 0.]
 [0. 1. 1. 1. 1. 1. 1. 1. 1. 0.]
 [0. 1. 1. 1. 1. 1. 1. 1. 1. 0.]
 [0. 1. 1. 1. 1. 1. 1. 1. 1. 0.]
 [0. 1. 1. 1. 1. 1. 1. 1. 1. 0.]
 [0. 1. 1. 1. 1. 1. 1. 1. 1. 0.]
 [0. 0. 0. 0. 0. 0. 0. 0. 0. 0.]]
Task  8
[[0 1 0 1 0 1 0 1]
 [1 0 1 0 1 0 1 0]
 [0 1 0 1 0 1 0 1]
 [1 0 1 0 1 0 1 0]
 [0 1 0 1 0 1 0 1]
 [1 0 1 0 1 0 1 0]
 [0 1 0 1 0 1 0 1]
 [1 0 1 0 1 0 1 0]]
Task  9
[[0 1 0 1 0 1 0 1]
 [1 0 1 0 1 0 1 0]
 [0 1 0 1 0 1 0 1]
 [1 0 1 0 1 0 1 0]
 [0 1 0 1 0 1 0 1]
```

10 – 16 задания

1.py - G:\САФУ\ЛР9\1.py (3.10.7)

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```
print("Task ", 10)
X = np.dot(np.ones((4,2)), np.ones((2,5)))
print(X)

print("Task ", 11)
X = np.arange(11)
X[(4 < X) & (X <= 7)] *= -1
print(X)

print("Task ", 12)
X = np.Xeros((6,6))
X += np.arange(6)
print(X)

print("Task ", 13)
X = np.random.random(10)
X.sort()
print(X)

print("Task ", 14)
A = np.random.randint(0,2,5)
B = np.random.randint(0,2,5)
equal = np.allclose(A,B)
print(equal)

print("Task ", 15)
X = np.random.random(10)
X[X.argmax()] = 0
print(X)

print("Task ", 16)
X = np.arange(100)
v = np.random.uniform(0,100)
index = (np.abs(X-v)).argmin()
print(X[index])
```

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```
 [1 0 1 0 1 0 1 0]]
Task  9
[[0 1 0 1 0 1 0 1]
 [1 0 1 0 1 0 1 0]
 [0 1 0 1 0 1 0 1]
 [1 0 1 0 1 0 1 0]
 [0 1 0 1 0 1 0 1]
 [1 0 1 0 1 0 1 0]
 [0 1 0 1 0 1 0 1]
 [1 0 1 0 1 0 1 0]]
Task  10
[[2. 2. 2. 2. 2.]
 [2. 2. 2. 2. 2.]
 [2. 2. 2. 2. 2.]
 [2. 2. 2. 2. 2.]]
Task  11
[ 0  1  2  3  4 -5 -6 -7  8  9 10]
Task  12
[[0. 1. 2. 3. 4. 5.]
 [0. 1. 2. 3. 4. 5.]
 [0. 1. 2. 3. 4. 5.]
 [0. 1. 2. 3. 4. 5.]
 [0. 1. 2. 3. 4. 5.]
 [0. 1. 2. 3. 4. 5.]]
Task  13
[0.03918953 0.15432431 0.25243033 0.53284434 0.59371916 0.62630023
 0.63610946 0.79356132 0.80280709 0.88100804]
Task  14
False
Task  15
[0.78550923 0.25567569 0.50709614 0.70940525 0.         0.21347459
 0.04305791 0.64052157 0.00263485 0.49959562]
Task  16
74
>>>
```