\*Я точно не помню, какие задания уже сделаны, а какие нет. Поэтому прикреплю, возможно, уже сделанные работы.

1) **Обнуление матрицы:**

m=[[1]\*5]\*5

for i in range(5):

for j in range(5):

print(m[i][j], end=' ')

print("")

print("\n")

for i in range(5):

for j in range(5):

if(i==0 or i==4):

m[i][j]=0

elif(j==0 or j==4):

m[i][j]=0

else:

m[i][j] = 1

print(m[i][j], end=' ')

print("")

2) **Спираль:**

N = 5

a = [list(map(int, input().split())) for i in range(N)]

m = 2

print(a[N//2][N//2], end=' ')

for k in range(N//2, 0, -1):

for i in range(k, k+m):

print(a[i][-k], end=' ')

for j in range(k+1, k+m+1):

print(a[i][-j], end=' ')

for i in range(k+1, k+m+1) :

print(a[-i][-j], end=' ')

for j in range(k, k+m):

print(a[-i][j], end=" ")

m+=2

3) **Произведение матриц:**

def matrixmult (A, B):

    rows\_A = len(A)

    cols\_A = len(A[0])

    rows\_B = len(B)

    cols\_B = len(B[0])

    if cols\_A != rows\_B:

      print ("Cannot multiply the two matrices. Incorrect dimensions.")

      return

    # Create the result matrix

    # Dimensions would be rows\_A x cols\_B

    C = [[0 for row in range(cols\_B)] for col in range(rows\_A)]

    print(C)

    for i in range(rows\_A):

        for j in range(cols\_B):

            for k in range(cols\_A):

                C[i][j] += A[i][k] \* B[k][j]

    return C

n = int(input('Введите размерность матрицы \n'))

A = []

for i in range(n):

    A.append(list(map(int, input().split())))

print('Вторая матрица \n')

n2 = int(input('Введите размерность матрицы \n'))

B = []

for i in range(n2):

    A.append(list(map(int, input().split())))

print('Произведение матриц \n')

print(matrixmult(A,B))

4) **Произведение матрицы на число:**

n = int(input('Введите размер матрицы \n'))

a = []

for i in range(n):

a.append([int(j) for j in input().split()])

k = int(input('На какое число умножить матрицу > '))

for i in range(n):

for j in range(n):

a[i][j] \*= k

print(a)

5) **Вычислить и :**

import math as m

x = int(input('Введите x \n'))

y = int(input('Введите y \n'))

z = int(input('Введите z \n'))

u = m.sin(m.fabs((y-pow(m.fabs(x), 0.5)) \* (x - (y/(z\*z + x\*x/4)) )))

print(u)

v = m.cos(z\*z + x\*x/4)

print(v)

**6) Сортировка:**

from random import randint

N = 10

a = []

for i in range(N):

a.append(randint(1, 99))

print(a)

for i in range(N-1):

for j in range(N-i-1):

if a[j] > a[j+1]:

a[j], a[j+1] = a[j+1], a[j]

print(a)

**7) Дана действительная квадратная матрица порядка 2n. Получить новую матрицу, переставляя ее блоки размера n\*n.**

def sozd(n):

k = []

for i in range(n):

k.append([])

for i in range(n):

for j in range(n):

k[i].append(0)

return k

def p(a):

for i in range(len(a)):

for j in range(len(a)):

print('%4d' % a[i][j], end = " ")

print("\n")

n = int(input())

a = sozd(2\*n)

c = 1

for i in range(n\*2):

for j in range(n\*2):

a[i][j] = c

c += 1

p(a)

b = a

a1 = sozd(n)

a2 = sozd(n)

a3 = sozd(n)

a4 = sozd(n)

for i in range(n):

for j in range(n):

a1[i][j] = a[i][j]

for i in range(n, 2\*n):

for j in range(n):

a2[i%n][j] = a[i][j]

for i in range(n):

for j in range(n, n\*2):

a3[i][j%n] = a[i][j]

for i in range(n, n\*2):

for j in range(n, n\*2):

a4[i%n][j%n] = a[i][j]

print("Задание а:")

for i in range(2\*n):

for j in range(2\*n):

if i < n and j < n:

a[i][j] = a4[i][j]

elif i >= n and j < n:

a[i][j] = a3[i%n][j]

elif i < n and j >= n:

a[i][j] = a2[i][j%n]

elif i >= n and j >= n:

a[i][j] = a1[i%n][j%n]

p(a)

print("Задание б:")

for i in range(2\*n):

for j in range(2\*n):

if i < n and j < n:

b[i][j] = a2[i][j]

elif i >= n and j < n:

b[i][j] = a4[i%n][j]

elif i < n and j >= n:

b[i][j] = a1[i][j%n]

elif i >= n and j >= n:

b[i][j] = a3[i%n][j%n]

p(b)

**8) Вычислить при помощи чисел Фибоначчи**

import math as m

def c(k):

if k == 0 or k == 1:

return k

else:

return c(k-1) + c(k-2)

for i in range(16):

u = (1/m.sqrt(5))\*(((1+m.sqrt(5))/2)\*\*i)

print('%4d' % round(u), c(i), sep = " "

**9) Дана действительная матрица порядка n. Найти наибольшее из значений элементов, расположенных в заштрихованной части матрицы**

a = []

n = int(input("Р’РІРµРґРёС‚Рµ РїРѕСЂСЏРґРѕРє РјР°С‚СЂРёС†С‹ "))

c = 1

for i in range(n):

a.append([])

for i in range(n):

for j in range(n):

a[i].append(c)

c += 1

for i in range(n):

for j in range(n):

print('%4d' % a[i][j], end = " ")

print("\n")

print("Р’С‹Р±РµСЂРёС‚Рµ Р·Р°РґР°РЅРёРµ Р° Р± РІ Рі Рґ Рµ Р¶ Р· Рё Рє")

z = input()

if z == "Р°":

max = 0

flag = 0

for i in range(n):

for j in range(n):

if i < j:

if flag == 0:

max = a[i][j]

flag = 1

elif a[i][j] > max:

max = a[i][j]

print(max)

elif z == "Р±":

max = 0

flag = 0

for i in range(n):

for j in range(n):

if i > j:

if flag == 0:

max = a[i][j]

flag = 1

elif a[i][j] > max:

max = a[i][j]

print(max)

elif z == "РІ":

max = 0

flag = 0

for i in range(n):

for j in range(n):

if (i < j) and (i + j < n-1):

if flag == 0:

max = a[i][j]

flag = 1

elif a[i][j] > max:

max = a[i][j]

print(max)

elif z == "Рі":

max = 0

flag = 0

for i in range(n):

for j in range(n):

if (i > j) and (i + j > n-1):

if flag == 0:

max = a[i][j]

flag = 1

elif a[i][j] > max:

max = a[i][j]

print(max)

elif z == "Рґ":

max = 0

flag = 0

for i in range(n):

for j in range(n):

if ((i < j) and (i + j < n-1)) or ((i > j) and (i + j > n-1)):

if flag == 0:

max = a[i][j]

flag = 1

elif a[i][j] > max:

max = a[i][j]

print(max)

elif z == "Рµ":

max = 0

flag = 0

for i in range(n):

for j in range(n):

if ((i > j) and (i + j < n-1)) or ((i < j) and (i + j > n-1)):

if flag == 0:

max = a[i][j]

flag = 1

elif a[i][j] > max:

max = a[i][j]

print(max)

elif z == "Р¶":

max = 0

flag = 0

for i in range(n):

for j in range(n):

if ((i > j) and (i + j < n-1)):

if flag == 0:

max = a[i][j]

flag = 1

elif a[i][j] > max:

max = a[i][j]

print(max)

elif z == "Р·":

max = 0

flag = 0

for i in range(n):

for j in range(n):

if ((i < j) and (i + j > n-1)):

if flag == 0:

max = a[i][j]

flag = 1

elif a[i][j] > max:

max = a[i][j]

print(max)

elif z == "Рё":

max = 0

flag = 0

for i in range(n):

for j in range(n):

if (i + j < n-1):

if flag == 0:

max = a[i][j]

flag = 1

elif a[i][j] > max:

max = a[i][j]

print(max)

elif z == "Рє":

max = 0

flag = 0

for i in range(n):

for j in range(n):

if (i + j > n-1):

if flag == 0:

max = a[i][j]

flag = 1

elif a[i][j] > max:

max = a[i][j]

print(max)