import random

def crea\_matriz(renglones, columnas):

matriz = []

for i in range(renglones):

matriz.insert(i, [] )

for j in range(columnas):

valor = int(input("Introduce un valor: "))

matriz[i].insert(j, valor)

return matriz

def imprime\_matriz(m):

for i in range(len(m)):

for j in range(len(m[i])):

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

print()

def llena\_matriz(m):

for i in range(len(m)):

for j in range(len(m[i])):

m[i][j] = random.randint(-15, 20)

def suma\_positivos(m):

acum = 0

for i in range(len(m)):

for j in range(len(m[i])):

if m[i][j] > 0:

acum = acum + m[i][j]

return acum

def modifica\_celda(matriz, renglon, columna, valor):

matriz[renglon][columna] = valor

def suma\_diagonal\_inversa(m):

acum = 0

columna = len(m[0])-1

for i in range(len(m)):

if columna >= 0:

acum = acum + m[i][columna]

columna = columna-1

return acum

def suma\_diagonal\_inversa2(m):

acum = 0

columna = len(m[0])-1

for i in range(len(m)):

for j in range(len(m[i])):

if i+j == columna:

acum = acum + m[i][j]

return acum

def multiplica\_renglon(m, renglon, num):

for i in range(len(m)):

for j in range(len(m[i])):

if i == renglon:

m[i][j] = m[i][j] \* num

def intercambia\_renglones(m, r1, r2):

for i in range(len(m)):

for j in range(len(m[i])):

if i == r1:

temp = m[r1][j]

m[r1][j] = m[r2][j]

m[r2][j] = temp

def encuentraFamilia(matriz, cadena):

acum = 0

for i in range(0, len(matriz)):

for j in range(0, len(matriz[i])):

if cadena == matriz[i][j]:

return matriz[i]

break

return "el nombre no esta en la tabla"

"""def promedio(m):

acum = 0

for i in range(0, len(m)):

columnas = len(m[i])

for j in range(0, len(m[i])):

acum = acum + m[i][j]

return acum/ (len(m)\*columnas)

def multiplicaColumna(m, columna, num):

for i in range(0, len(m)):

for j in range(0, len(m[i])):

if j == columna:

m[i][j] = m[i][j] \* num

def posicionPares(m):

for i in range(0, len(m)):

for j in range(0, len(m[i])):

if m[i][j]%2==0:

print("El valor %i está en la posición %i, %i"%(m[i][j], i, j))

"""

def menu():

print()

print("1. Imprime matriz")

print("2. Llena matriz")

print("3. Suma positivos")

print("4. Modifica celda")

print("5. Suma diagonal inversa")

print("6. Multiplica renglón")

print("7. Intercambia renglones")

print("8. Encuentra nombres")

print("9. Salir")

#M = [ [1,2,3,4], [2,1,2,2], [3,2,1,2], [4,2,2,1] ] # Declarar una matriz

#M = [ [2,5,6,4], [3,4,5,1], [7,8,5,6], [9,7,1,5] ] # Declarar una matriz

nombresEpicos= [ ["Naofumi", "Filo", "Raphtalia"], ["Rand Al'thor", "Perrin Arabaya", "Mathrim Cauldron", "Egwene Al'vere", "Nynaieve Al'mere"], ["Lithany of Fury", "Macragge's Honour", "Vengeful Spirit", "Harbinger of Doom", "Chronicle of Ashes"], ["Cloud Strife", "Sephiroth", "Vincent Valentine", "Zack Fair", "Aerith Gainsborough", "Tifa Lockhart", "Barret Wallace", "Yuffie Kisaragi"], ["Cormyr", "WestGate", "Suzeil", "Menzoberranzan", "Waterdeep"], ["Atlas", "Dectective Comics", "Dark Horse", "Image"] ]

tabla\_periodica = [["litio", "sodio", "potasio", "rubidio", "cesio", "francio"], ["berilio", "magnesio", "calcio", "estroncio", "bario", "radio"], ["escandio", "itrio", "lantano", "actinio"], ["titanio", "circonio", "hafnio", "rutherfordio"], ["vanadio", "niobio", "tántalo", "dubnio"], ["cromo", "molibdeno", "wolframio", "seaborgio"], ["manganeso", "tecnecio", "renio"], ["hierro", "rutenio", "osmio", "hassio"], ["cobalto", "rodio", "Iridio", "meitnerio"], ["níquel", "paladio", "platino", "darmstadtio"], ["cobre", "plata", "oro"], ["zinc", "cadmio", "mercurio"], ["boro", "aluminio", "galio", "indio", "talio", "nihonio"], ["carbono", "silicio", "germanio", "estaño", "plomo", "flerovio"], ["nitrógeno", "fósforo", "arsénico", "antimonio", "bismuto", "moscovio"], ["oxígeno", "azufre", "selenio", "telurio", "polonio", "livermorio"], ["flúor", "cloro", "bromo", "yodo", "astato", "téneso"], ["helio", "neón", "argón", "kriptón", "xenón", "radón", "organesón"] ]

def main():

ren = int(input("Introduce el número de renglones: "))

col = int(input("Introduce el número de columnas: "))

M = crea\_matriz(ren, col)

continua = True

while continua:

menu()

opcion = int(input("Introduce una opcion: "))

if opcion == 1:

imprime\_matriz(M)

elif opcion == 2:

llena\_matriz(M)

imprime\_matriz(M)

elif opcion == 3:

imprime\_matriz(M)

res = suma\_positivos(M)

print("La suma de positivos es: %i" % res)

elif opcion == 4:

imprime\_matriz(M)

r = int(input("Introduce el número de renglón: "))

c = int(input("Introduce el número de columna: "))

num = int(input("Introduce el valor: "))

modifica\_celda(M, r, c, num)

imprime\_matriz(M)

elif opcion == 5:

imprime\_matriz(M)

res = suma\_diagonal\_inversa2(M)

print("La suma de la diagonal inversa es", res)

elif opcion == 6:

imprime\_matriz(M)

r = int(input("Introduce el número de renglón: "))

num = int(input("Introduce el número: "))

multiplica\_renglon(M, r, num)

imprime\_matriz(M)

elif opcion == 7:

imprime\_matriz(M)

r1 = int(input("Introduce el renglón 1: "))

r2 = int(input("Introduce el renglón 2: "))

intercambia\_renglones(M, r1, r2)

imprime\_matriz(M)

elif opcion == 8:

cadena = str(input("Introduce un elemento de la tabla periodica: "))

lista = encuentraFamilia(tabla\_periodica, cadena)

print(lista)

elif opcion == 9:

print("Adios")

continua = False

else:

print("Opcion\_invalida")

main()