MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE

NATIONAL TECHNICAL UNIVERSITY

«KHARKIV POLYTECHNIC INSTITUTE»

Department of Software Engineering and Management Information Technologies

Report from lab № 2

discipline «Fundamentals of python»

Kharkiv

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***Laboratory work 2 (if...else...elif)***

*1. The problem of "minimum of two numbers"*

Two integers are given. Print the value of the smallest of them.

*2. Task "Sign of the Number"*

In mathematics, the function *sign* (*x*) (the sign of a number) is defined as follows:

sign (x) = 1 if x> 0,

sign (x) = -1 if x <0,

sign (x) = 0 if x = 0.

For a given number x, print the value of *sign* (x). It is advisable to solve this problem using cascading instructions if ... elif ... else.

*3. The Chess Board Chall*

Two checkerboard squares are set. If they are painted in the same color, then print the word YES, and if in different colors – then NO. The program receives four numbers from 1 to 8 each, specifying the column number and row number, first for the first cell, then for the second cell.

*4. The Leap Year Challenge*

Given a natural number. It is required to determine whether the year with the given number is a leap year. If the year is a leap year, then print YES, otherwise print NO. Recall that in accordance with the Gregorian calendar, a year is a leap year if its number is a multiple of 4 but not a multiple of 100, and also if it is a multiple of 400.

*5. The task of "minimum of three numbers"*

Three integers are given. Print the value of the smallest of them.

*6. The task "How many numbers match"*

Three integers are given. Determine how many of them are matching. The program should print one of the numbers: 3 (if all match), 2 (if two match) or 0 (if all numbers are different).

*7. The Chocolate Challenge*

The chocolate has the form of a rectangle divided into n × m slices. Chocolate can be broken once in a straight line into two parts. Determine whether it is possible in this way to break off a piece consisting of exactly *k* slices from a chocolate bar. The program receives three numbers as input: *n*, *m*, *k* and should output YES or NO.

Solution :

import sys

import math

#no 1

def minimum():

    num1 = int(input("input first number : \n"))

    num2 = int(input("input second number : \n"))

    if num1 > num2:

        print("the value of the smaller number is : " , num2 )

    elif num2 > num1:

        print("the value of the smaller number is : " , num1 )

    else:

        print("the numbers are of equal value  " )

#no2

def signX():

    x = int(input("please enter the value of X : "))

    value = None

    if x > 0:

        value = 1

    elif x < 0:

        value = -1

    else :

        value = 0

    print("the value of sign(x) is : " , value)

#no3

def check\_box\_colour(c,r):

    color = None

    if (c % 2 == 0) and (r % 2 == 0):

        color = "w"

    elif (c % 2 == 0) and (r % 2 != 0):

        color = "b"

    elif(c % 2 != 0) and (r % 2 != 0):

        color = "w"

    else:

        color = "b"

    return color

def chessBoard():

    while(True):

        coll1 = int(input("enter the column value of first square "))

        if coll1 > 8 or coll1 < 1:

            continue

        else:

            break

    while(True):

        row1 = int(input("enter the row value of first square "))

        if row1 > 8 or row1 < 1:

            continue

        else:

            break

    while(True):

        coll2 = int(input("enter the column value of second square "))

        if coll2 > 8 or coll2 < 1:

            continue

        else:

            break

    while(True):

        row2 = int(input("enter the row value of second square "))

        if row2 > 8 or row2 < 1:

            continue

        else:

            break

    color1 = check\_box\_colour(coll1,row1)

    color2 = check\_box\_colour(coll2,row2)

    if color1 == color2:

        print("YES")

    else:

        print("NO")

#4

def leap():

    year = int(input("please enter the year"))

    if(year % 4 == 0) and (year % 100 != 0):

        print("YES")

    elif(year % 400 == 0):

        print("YES")

    else:

        print("NO")

#5

def smallest():

    num1 = int(input("entr value of num1 "))

    num2 = int(input("entr value of num2 "))

    num3 = int(input("entr value of num3 "))

    lowest = None

    if num2 >= num1:

        lowest = num1

    else:

        lowest = num2

    if lowest >= num3:

            lowest = num3

    print("the value of lowest is :", lowest)

#6

def matching():

    num1 = int(input("entr value of num1 "))

    num2 = int(input("entr value of num2 "))

    num3 = int(input("entr value of num3 "))

    matches = 0

    if num2 == num1:

        matches += 1

    if num2 == num3:

        matches += 1

    if num3 == num1:

        matches += 1

    if matches == 1:

        matches += 1

    print("the value of matches  is :", matches)

#7

def chocolate():

    n = int(input("entr value of n "))

    m = int(input("entr value of m "))

    k = int(input("entr value of division  k "))

    slice = n \* m

    if k <= slice:

        print("YES")

    else:

        print("NO")

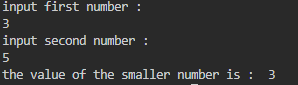
def main():

    chocolate()

if \_\_name\_\_ == "\_\_main\_\_":

    main()

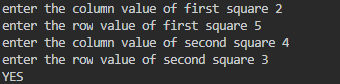
NO1



NO2



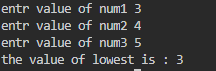
No3:



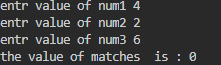
No4:



No5:



No6:



No7:

