**Date :10/11/2021**

**Tutorial-2**

**Course Outcome 1 (CO1):**

**Question 1 :**

Write a python program for display future leap years from current year to a final year entered by user.

**Program**

from datetime import date

today = date.today()

y=today.year

x=int(input("Enter the final year : "))

if y > x:

    print("Sorry! Invalid Year ")

else:

    print("Leap years between ", y," and ",x , "  are : " )

    while y <= x:

        if (y % 4) == 0:

            if (y % 100) == 0:

                if (y % 400) == 0:

                    print(y)

            else:

                print(y)

        y += 1

**Output**

Enter the final year: 2045

Leap years between 2021 and 2045 are:

2024

2028

2032

2036

2040

2044

**Question-2**

List comprehensions:

(a) Generate positive list of numbers from a given list of integers

(b) Square of N numbers

(c) Form a list of vowels selected from a given word

(d) List ordinal value of each element of a word (Hint: use ord() to get ordinal values)

**Program 2.a**

#Generate positive list of numbers from a given list of integers

l1=[]

n=int(input("Enter the limit of the list : "))

print("Enter",n," Numbers :")

for l in range(0,n):

    t=int(input())

    l1.append(t)

print("Old list : ",l1)

l2=[i for i in l1 if i>0]

print("New list : ",l2)

**Output**

Enter the limit of the list: 5

Enter 5 Numbers:

3

4

-6

-9

-1

Old list: [3, 4, -6, -9, -1]

New list: [3, 4]

**Program 2.b**

#Square of N numbers

l1=[]

n=int(input("Enter the limit of the list : "))

print("Enter",n," Numbers :")

for l in range(0,n):

    t=int(input())

    l1.append(t)

print("Old list : ",l1)

l2=[i  \*\*2 for i in l1 ]

print("New list : ",l2)

**Output**

Enter the limit of the list: 4

Enter 4 Numbers:

7

3

5

9

Old list: [7, 3, 5, 9]

New list: [49, 9, 25, 81]

**Program 2.c**

w= input("Enter the word : ")

a = ['a', 'e', 'i', 'o', 'u', 'A', 'E', 'I', 'O', 'U']

vl=[i for i in w if i in a]

print("The word is ",w, " and vowels in the word  are :",vl)

**Output**

Enter the word: sruthi

The word is sruthi and vowels in the word are: ['u', 'i']

**Program 2.d**

x = input("Enter the word : ")

b=[ord(i) for i in x]

print(b)

**Output**

Enter the word: sruthi

Word is sruthi and ordinal value of each element is: [115, 114, 117, 116, 104, 105]

**Question-3**

Count the occurrences of each word in a line of text.

**Program**

sen = input("Enter the text :")

w= sen.split(' ')

c = {}

for w in w:

    c[w] = c.get(w, 0) + 1

print("The no: of occurrences of each word in a line of text is :",c)

**Output**

Enter the text: Smallest bird in the world is Humming bird and Humming bird color is blue

The no: of occurrences of each word in a line of text is: {'Smallest': 1, 'bird': 3, 'in': 1, 'the': 1, 'world': 1, 'is': 2, 'Humming': 2, 'and': 1, 'color': 1, 'blue': 1}

**Question-4**

Prompt the user for a list of integers. For all values greater than 100, store ‘over’ instead.

**Program**

lst =  []

y = 1

while y > 0 :

    x = int(input("Enter the number = "))

    if x > 100:

        a = "Over"

    else:

        a = x

    lst.append(a)

    print(lst)

**Output**

Enter the number = 23

[23]

Enter the number = 45

[23, 45]

Enter the number = 304

[23, 45, 'Over']

Enter the number = 801

[23, 45, 'Over', 'Over']

Enter the number = 11

[23, 45, 'Over', 'Over', 11]

Enter the number = 9

[23, 45, 'Over', 'Over', 11, 9]

**Question-5**

Store a list of first names. Count the occurrences of ‘a’ within the list.

**Program**

name=["anu","sujith","sruthi","nadhana","adhidev"]

n=0

for x in name:

  n=n+x.count("a")

print("Number of 'a' in the list : ",name," is :",n)

**Output**

Number of 'a' in the list : ['anu', 'sujith', 'sruthi', 'nadhana', 'adhidev'] is : 5

**Question-6**

Enter 2 lists of integers. Check

(a) Whether list are of same length

(b) Whether list sums to same value

(c) Whether any value occurs in both.

**Program**

lst1 = ['6', '7', '2', '9','4','55','14','100']

lst2 = ['0', '2', '66', '3', '6']

sum1 = str(0)

sum2 = str(0)

if len(lst1) == len(lst2):

    print("Both list are of same length")

else:

    print("Two lists have diffrent  length")

for x in lst1:

    sum1 = sum1 + x

for x in lst2:

    sum2 = sum2 + x

if sum1 == sum2:

    a = "Equal"

else:

**a = "Not Equal"**

print(" Sum of two list are : ", a)

for x in lst1:

    for y in lst2:

        if x == y:

            print(y," Occurs in both list")

**Output**

Two lists have unequal length

Sum of two lists are not equal

2 occurs in both list

3 occurs in both list

**Question-7**

Get a string from an input string where all occurrences of first character replaced with ‘$’, except first character. [eg: onion -> oni$n]

**Program**

str1= input("Enter the string : ")

ch = str1[0]

str1 = str1.replace(ch, '$')

str1 = ch + str1[1:]

print("The new string is : ",str1)

**Output**

Enter the string : elephant

The new string is : el$phant

**Question 8**

Create a string from given string where first and last characters exchanged. [eg: python - > nythop]

**Program**

str1= input("Enter the string : ")

print("The new string is : ",str1[-1:] + str1[1:-1] + str1[:1])

**Output**

Enter the string : hello

The new string is : oellh

**Question 9**

Accept the radius from user and find area of circle.

**Program**

radius = int(input("Enter the radius of circle : "))

print( "Area of Circle :", 3.14 \* radius \* radius ,"square units")

**Output**

Enter the radius of circle: 5

Area of Circle: 78.5 square units

**Question 10**

Find biggest of 3 numbers entered.

**Program**

y = float('-inf')

for x in range (0,3):

    a = int(input("Enter the Number :  "))

    if a > y:

        y = a

print("Biggest number is : ", y)

**Output**

Enter the Number: 4

Enter the Number: 9

Enter the Number: 2

Biggest number is: 9

**Question 11**

Accept a file name from user and print extension of that

**Program**

filename = input("Enter the Filename = ")

extension = filename.split(".")

print ("The extension of the file is : " + repr(extension[-1]))

**Output**

Enter the Filename = tutorial.py

The extension of the file is : 'py'

**Question 12**

Create a list of colors from comma-separated color names entered by user. Display first and last colors.

**Program**

lst = []

for x in range(0,4):

    colour = input("Enter the colour : ")

    lst.append(colour)

print("first and last colors are : ", lst[0], lst[-1] )

**Output**

Enter the colour: red

Enter the colour: blue

Enter the colour: white

Enter the colour: yellow

first and last colors are : red yellow

**Question 13**

Accept an integer n and compute n+nn+nnn.

**Program**

n = int(input("Enter the integer = "))

print("(n + nn + nnn) =", n+n\*n+n\*n\*n)

**Output**

Enter the integer = 4

(n + nn + nnn) = 84

**Question 14**

Print out all colors from color-list1 not contained in color-list2.

**Program**

lst1 = []

lst2 = []

print("Enter the Colours in list 1 : ")

for x in range(1,5):

    a = str(input())

    lst1.append(a)

print("Enter the Colours in list 2 :  ")

for x in range(1,5):

    a = str(input())

    lst2.append(a)

print("List 1 : ",lst1)

print("List 2 : ",lst2)

s1=set(lst1)

s2=set(lst2)

print("The diffrence is : ",s1.difference(s2))

**Output**

Enter the Colours in list 1 :

red

blue

black

green

Enter the Colours in list 2 :

yellow

blue

green

white

List 1 : ['red', 'blue', 'black', 'green']

List 2 : ['yellow', 'blue', 'green', 'white']

The diffrence is : {'black', 'red'}

**Question 15**

Create a single string separated with space from two strings by swapping the character at position 1.

**Program**

s1=input("Enter the first string=")

s2=input("Enter the second string=")

print("The new string is : ",s2[0]+s1[1:]+" "+s1[0]+s2[1:])

**Output**

Enter the first string=hello

Enter the second string=world

The new string is : wello horld

**Question 16**

Sort dictionary in ascending and descending order.

**Program**

d={"jan":31,"feb":28,"march":31,"april":30,"may":31}

print("Ascending Order : ",sorted(d.items()))

print("Descending Order : ", sorted(d.items(),reverse=True))

**Output**

Ascending Order : [('april', 30), ('feb', 28), ('jan', 31), ('march', 31), ('may', 31)]

Descending Order : [('may', 31), ('march', 31), ('jan', 31), ('feb', 28), ('april', 30)]

**Question 17**

Merge two dictionaries.

**Program**

d1={"jan":31,"feb":28,"march":31}

d2={"april":30,"may":31,"jun":30,"july":31}

print("dictionaries 1 : ",d1)

print("dictionaries 2 :",d2)

d1.update(d2)

print("After merging both dictionaries",d1)

**Output**

dictionaries 1 : {'jan': 31, 'feb': 28, 'march': 31}

dictionaries 2 : {'april': 30, 'may': 31, 'jun': 30, 'july': 31}

After merging both dictionaries {'jan': 31, 'feb': 28, 'march': 31, 'april': 30, 'may': 31, 'jun': 30, 'july': 31}

**Question 18**

Find gcd of 2 numbers.

**Program**

from fractions import gcd

num1 = int(input("Enter the First number"))

num2 = int(input("Enter the second number"))

print("GCD (",num1,",",num2,") is : "+str(gcd(num1,num2)))

**Output**

Enter the First number: 60

Enter the second number: 24

GCD ( 60,24 ) is : 12

**Question 19**

From a list of integers, create a list removing even numbers.

**Program**

lst1=[]

lst2=[]

n =int(input("Enter the number of integers : "))

for x in range(0,n):

    y = int(input("Enter the integer : "))

    lst1.append(y)

    if y%2!=0:

        lst2.append(y)

print("List : ",lst1)

print("List without even numbers : ",lst2)

**Output**

Enter the number of integers: 5

Enter the integer: 23

Enter the integer: 34

Enter the integer: 11

Enter the integer: 22

Enter the integer: 23

List : [23, 34, 11, 22, 23]

List without even numbers: [23, 11, 23]