**Ex.No:9**

**Date:**

**IMPLEMENTATION OF FUNCTIONAL PROGRAMMING PROGRAM**

**AIM:**

To implement functional programming in python.

**1. Write the python program to add two lists of input [7,8,1,2,3,4,5] and [3,4,1,29,1,5,1] using map and lambda and then perform multiplication for the resultant value off add with the input list [4,1,69,2,7,3,6]**

**ALGORITHM 1:**

* Define lambda function to add two numbers and assign a variable.
* Define two lists and pass it to lambda function using map function.
* Print the result
* Create another list and pass the output of previous step.
* Print the output.

**PROGRAM 1:**

add=lambda x,y:x+y

l=[7,8,1,2,3,4,5]

a=[3,4,1,29,1,5,1]

d=list(map(add,l,a))

print(d)

e=[4,1,69,2,7,3,6]

f=list(map(add,d,e))

print(f)

mul=lambda x,y:x\*y

y=list(map(mul,d,f))

print(y)

**OUTPUT 1:**

[10, 12, 2, 31, 4, 9, 6]

[14, 13, 71, 33, 11, 12, 12]

[140, 156, 142, 1023, 44, 108, 72]

**2. Write the python program to return the numbers divisible by 2 from the input list = [21, 24, 12, 34, 10, 15, 41] using lambda and filter function.**

**ALGORITHM 2:**

* Use lambda function to check whether the number is divisible by 4.
* Pass the list as parameter.
* Display the result.

**PROGRAM 2 :**

l=[21,24,12,34,10,15,41]

res=list(filter(lambda x:(x%2==0),l))

print(res)

**OUTPUT 2 :**

[24, 12, 34, 10]

**3.Write the python program to get the multiplication and division from the list of input = [10, 24, 34, 42, 19] using lambda and reduce function.**

**ALGORITHM 3:**

* Define lambda to add two numbers a and b.
* Define lambda to multiply two numbers.
* Import reduce function.
* Pass both the lambda functions to reduce and assign to variables d and e.
* Print the results.

**PROGRAM 3 :**

from functools import reduce

f=[10,24,34,24,19]

d=reduce(lambda a,b:a\*b,f)

e=reduce(lambda a,b:a/b,f)

print(d)

print(e)

**OUTPUT 3:**

3720960

2.6874785001719986e-05

**4.Write the python program to find sum of list elements and to find maximum element of the list**

**ALGORITHM 4:**

* Initialize the list
* Use reduce to compute sum of list
* Use reduce to compute maximum element from list
* Print the results.

**PROGRAM 4:**

import functools

lis = [ 1 , 3, 5, 6, 2, ]

print ("The sum of the list elements is : ",end="")

print (functools.reduce(lambda a,b : a+b,lis))

print ("The maximum element of the list is : ",end="")

print (functools.reduce(lambda a,b : a if a > b else b,lis))

**OUTPUT 4:**

he sum of the list elements is : 17

The maximum element of the list is : 6

**5.Write the python program to find product of list elements and to find concatenated product of the list**

**ALGORITHM 5:**

* Importing operator for operator functions
* Initialize the list
* Use reduce to compute product
* Use reduce to compute maximum element from list
* Print the results.

**PROGRAM 5:**

import functools

import operator

lis = [ 1 , 3, 5, 6, 2, ]

print ("The product of list elements is : ",end="")

print (functools.reduce(operator.mul,lis))

# using reduce to concatenate string

print ("The concatenated product is : ",end="")

print (functools.reduce(operator.add,["welcome","to","SRM"]))

**OUTPUT 5:**

The product of list elements is : 180

The concatenated product is : welcome to SRM

**RESULT:**

Thus the Python program to implement functional programming paradigm have been written and executed successfully.