AssignmentPython12-Functions Revisited-I

Q1. Write lambdas to:

a. Square a number x^2 b. Inverse a number 1/x c. Negate a number.

In [12]:
```
#a. Square a number x²
x=int(input("enter a digit: "))
s=(lambda x:x*x)(x)
print(f"square of number :{x} =",s)
```

```
enter a digit3
square of number :3 = 9
```

In [18]:
```
#b. Inverse a number 1/x
x=int(input(" enter a digit: "))
i=(lambda x:1/x)(x)
print(f" Inverse  of number :{x} =",i)
```

```
enter a digit: 4
Inverse  of number :4 = 0.25
```

In [47]:
```
#c. Negate a number
l=[-1,-2,-3,-4,1,2,3]
n=list(filter(lambda x:x<=0,l))
print(n)
```

```
[-1, -2, -3, -4]
```

Q 2. Use reduce function and an appropriate lambda to find the maximum number in a list.

In [64]:
```
from functools import reduce
l=input("enter a number list : ").split()
m=reduce(lambda x,y : x if x > y else y,l)
print("Maximum number from list is = :",m)
```

```
enter a number list : 45 23 56 76
Maximum number from list is = : 76
```

Q 3. Write a function map_multiple that takes a list of functions/lambdas as first argument and asequence type as second argument. The function picks first lambda from list, applies it to first element, then applies the second function to the result of first one and....

def map_multiple(functs, sequence):Similarly it does for each element and generates a mapping of input to output

write definition here Ex: let list of lambdas be from question 1 and the list on numbers be [1,2,4]

So first function gives [1, 4, 16] Second gives [1, 0.25, 0.0625] Third gives [-1,-0.25, -0.0625]. Which is the final result.

In [ ]:
```
L=[1,2,4]
def map_multiple(functs, sequence):

    s=(lambda x:x*x)(x)
    print(f"square of number :{L} =",s)

    i=(lambda x:1/x)(L)
    print(f" Inverse  of number :{L} =",i)

    m=reduce(lambda x,y : x if x > y else y,x)
    print("Maximum number from list is = :",m)

map_multiple(s,L)
map_multiple(i,x)
map_multiple(m,L)
```

Q 4. Predict the output of following code:

In [8]:
```
import functools
from functools import reduce
f=lambda x,y: x if x > y else y

l=[10, 30, 50, 30, 10]
num= reduce (f, l)

print (num)
```

```
50
```

Q 5. Find output of following: ans (1 for num in l: ans.append(ren) print (ans)

In [9]:
```
functs=[lambda x:x**0.5,lambda x:1/x]
l=[1,4,16,64]
ans=[]
for num in l:
    res=num
    for funct in functs:
        res=funct(res)
    ans.append(res)
print(ans)
```

```
[1.0, 0.5, 0.25, 0.125]
```

Q 6. Use filter function to filter a list of numbers and strings such that the result contains only numbers. (Hint: Use isinstance method)

In [66]:
```
def num(myList):
    myList = [ 4,'a', 'b', 'c', 1, 'd', 3]
    myIntList = [i for i in myList if isinstance(i, int)]
    return myIntList
num(myList)
print(list(filter(num,myIntList)))
```

```
[4, 1, 3]
```

Q 7. Assume a list containing heights ft and inches in the form of a list of string Example: 1 = ['5ft10in', '5ft".....]

Write a function to convert the heights to meter. Use map function along with your function to convert everything to m.

In [19]:
```
s="5ft2in"
def h_to_m(s):
    ft=0
    ft_pos=s.find('ft')
    inch_str=s
    if ft_pos>0:
        ft=int(s[:ft_pos])
        inch_str=s.split('ft')[-1]
        print("ft:",ft)
        inch_pos=s.find('inch')
        h_inch=ft*12
        h_cm=round(h_inch*2.54)
        print("height in meter is: ",h_cm)
h_to_m(s)
```

```
ft: 5
height in meter is:  152
```