06 Feb Assignment

May 11, 2023

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Q1. Create a function which will take a list as an argument and return the␣
 ↪product of all the numbers
after creating a flat list.
Use the below-given list as an argument for your function.
list1 = [1,2,3,4, [44,55,66, True], False, (34,56,78,89,34), {1,2,3,3,2,1}, {1:
 ↪34, "key2": [55, 67, 78, 89], 4: (45,
22, 61, 34)}, [56, 'data science'], 'Machine Learning']
Note: you must extract numeric keys and values of the dictionary also.
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lst = [1,2,3,4, [44,55,66, True], False, (34,56,78,89,34) , {1,2,3,3,2,1}, {1:
 ↪34, "key2": [55,67,78,89], 4: (45,22,61,34)},
        [56, 'data science'], 'Machine Learning']
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import math

def multiply(numbers):
    flat_list = []
    for sublist in numbers:
        if type(sublist) == dict:
            for key in sublist.keys():
                if type(key) == int or type(key) == float:
                    flat_list.append(key)
                if type(sublist[key]) == int or type(sublist[key]) == float:
                    flat_list.append(sublist[key])
        elif type(sublist) == list:
            for item in sublist:
                if type(item) == int or type(item) == float:
                    flat_list.append(item)
        elif type(sublist) == int or type(sublist) == float:
            flat_list.append(sublist)
    return math.prod(flat_list)

list1 = [1,2,3,4, [44,55,66, True], False, (34,56,78,89,34), {1,2,3,3,2,1}, {1:
 ↪34, "key2": [55, 67, 78, 89], 4: (45,
22, 61, 34)}, [56, 'data science'], 'Machine Learning']
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print(multiply(list1))
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Q2.Write a python program for encrypting a message sent to you by your friend.␣
 ↪The logic of encryption
should be such that, for a the output should be z. For b, the output should be␣
 ↪y. For c, the output should
be x respectively. Also, the whitespace should be replaced with a dollar sign.␣
 ↪Keep the punctuation
marks unchanged.
Input Sentence: I want to become a Data Scientist.
Encrypt the above input sentence using the program you just created.
Note: Convert the given input sentence into lowercase before encrypting. The␣
 ↪final output should be
lowercase.
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[26]:
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import string
def encode(msg):
    msg=msg.lower()
    a=[]
    code=""
    for i in string.ascii_lowercase:
        a.append(i)
    y=a[::-1]
    for j in msg:
        if j.isspace():
                code=code+"$"
        elif j in string.punctuation:
                code=code+j
        else:
            n=a.index(j)
            code=code+y[n]

    return code
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[27]:
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encode(" I want to become a Data Scientist.")
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'$r$dzmg$gl$yvxlnv$z$wzgz$hxrvmgrhg.'
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