In [8]:
```
 Q.1 Create a function which will take a list as an argument and return the product
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,
22, 61, 34)}, [56, 'data science'], 'Machine Learning']
Note: you must extract numeric keys and values of the dictionary alsoQ!


list1 = [1,2,3,4, [44,55,66, True], False, (34,56,78,89,34), {1,2,3,3,2,1},{1:34,
def flatlist(list1):
    flist=[]
    for i in list1:
        if type(i)==list or type(i)==tuple or type(i)==set:
            for element in i:
                flist.append(element)
        elif type(i)==dict:
            temp_list=list(i.items())
            for i in temp_list: # [(1, 34), ('key2', [55, 67, 78, 89]), (4, (45, 2
                for element in i:
                    if type(element)==list or type(element)==tuple:
                        for j in element:
                            flist.append(j)
                    else:
                        flist.append(element)
        else:
            flist.append(i)
    return flist
list2=flatlist(list1)
print(list2)
a=1
for i in list2:
    if type(i)==int:
        a=a*i
print(a)
```

```
[1, 2, 3, 4, 44, 55, 66, True, False, 34, 56, 78, 89, 34, 1, 2, 3, 1, 34, 'key2',
55, 67, 78, 89, 4, 45, 22, 61, 34, 56, 'data science', 'Machine Learning']
413471183898708547883384124211200 0
```

In [ ]:
```
Q2. Write a python program for encrypting a message sent to you by your friend. Th
should be such that, for a the output should be z. For b, the output should be y.
be x respectively. Also, the whitespace should be replaced with a dollar sign. Kee
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
lowercase.


sentence = 'I want to beacome a Data Scientist.'

def encrypt(str_: str) -> str:
    str_ = str_.lower()
    all_alpha = list('abcdefghijklmnopqrstuvwxyz')

    result = ''
    for i in str_:
        if i.isalpha():
            idx = all_alpha.index(i)
            result += all_alpha[-idx - 1]
        elif i.isspace():
            result += '$'
```

```
        else:
            result += i
    return result

print(f'{sentence = }')
print(f'{encrypt(sentence) = }')
```