In [1]:
```
# Q1. Create a function which will take a list as an argument and return the produc
# 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']

list1 = [1,2,3,4, [44,55,66, True], False, (34,56,78,89,34), {1,2,3,3,2,1},{1:34, "
         [56, 'data science'], 'Machine Learning']

# phase 1
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:
                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)

413471183898708547883384124211200 0
Q2. Write a python program for encrypting a message sent to you by your friend. The

dict={'a':'x','b':'y','c':'x','d':'w','e':'v','f':'u','g':'t','h':'s','i':'r',
    'j':'q','k':'p','l':'o','m':'n','n':'m','o':'l','p':'k','q':'j','r':'i',
     's':'h','t':'g','u':'f','v':'e','w':'d','x':'c','y':'b',
      'z':'a'}
s="I want to become a Data Scientist"
new_s=s.lower()
for i in new_s:
    if i==" ":
        new_s=new_s.replace(" ","$")
new_s
```

```
'i$want$to$become$a$data$scientist'
for element in new_s:
    if element in dict.keys():
        new_s=new_s.replace(element,dict[element])
new_s
'r$wxmg$gl$yvxlmv$x$wxgx$hxrvmgrhg'
```

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  Cell In[1], line 43
    Q2. Write a python program for encrypting a message sent to you by your frien
d. 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 w
hitespace should be replaced with a dollar sign. Keep the punctuation marks unchan
ged. Input Sentence: I want to become a Data Scientist. Encrypt the above input se
ntence using the program you just created. Note: Convert the given input sentence
into lowercase before encrypting. The final output should be lowercase.
              ^
SyntaxError: invalid syntax
```

In [ ]: