

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']
```

```
In [7]: 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']
```

```
In [28]: def test(a):
l=[]
for i in a:
    if type(i)==list:
        for j in i:
            l.append(j)
return (l)
```

```
In [29]: test(list1)
```

```
Out[29]: [44, 55, 66, True, 56, 'data science']
```

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.

```
In [1]: # Python3 program to find Reciprocal string

# to check for UPPERCASE
def isupper(ch):
    if ch >= 'A' and ch <= 'Z':
        return True
    return False

# to check for LOWERCASE
def islower(ch):
    if ch >= 'a' and ch <= 'z':
        return True
    return False

# To print reciprocal string
def reciprocalString(word):
    ch = ''
    for i in range(len(word)):

        # converting uppercase character
        # To reciprocal character
        # display the character
        if isupper(word[i]):
            ch = chr(ord('Z') -
                    ord(word[i]) + ord('A'))
            print(ch, end = "")

        # converting lowercase character
        # To reciprocal character
        # display the character
        elif islower(word[i]):
            ch = chr(ord('z') -
                    ord(word[i]) + ord('a'))
            print(ch, end = "")
        else:
            print(word[i], end = "")

# Driver Code
if __name__ == "__main__":
    s = "I want to become a data scientiest"
    print("The reciprocal of", s, "is - ")
    reciprocalString(s)
```

The reciprocal of I want to become a data scientiest is -  
R dzmg gl yvxlnv z wzgz hxrvmgrvhg

```
In [ ]:
```