Question 1

Create a function that takes a list of non-negative **integers** and **strings** and return a new list without the strings.

**Examples**

filter\_list([1, 2, "a", "b"]) ➞ [1, 2]

filter\_list([1, "a", "b", 0, 15]) ➞ [1, 0, 15]

filter\_list([1, 2, "aasf", "1", "123", 123]) ➞ [1, 2, 123]

l = [1, 2, 'aasf', '1', '123', 123]

def filter\_list(l):

new\_list = []

for x in l:

if type(x) == int:

new\_list.append(x)

return new\_list

print(filter\_list(l))

Question 2

The "Reverser" takes a string as input and returns that string in reverse order, with the opposite case.

### Examples

reverse("Hello World") ➞ "DLROw OLLEh"

reverse("ReVeRsE") ➞ "eSrEvEr"

reverse("Radar") ➞ "RADAr"

def reverse(str):

str = str[::-1]

return str.swapcase()

print(reverse('ReVeRsE'))

reverse('Hello World')

reverse('Radar')

Question 3

You can assign variables from lists like this:

lst = [1, 2, 3, 4, 5, 6]

first = lst[0]

middle = lst[1:-1]

last = lst[-1]

print(first) ➞ outputs 1

print(middle) ➞ outputs [2, 3, 4, 5]

print(last) ➞ outputs 6

With Python 3, you can assign variables from lists in a much more succinct way. Create variables first, middle and last from the given list using **destructuring assignment** (check the **Resources** tab for some examples), where:

first ➞ 1

middle ➞ [2, 3, 4, 5]

last ➞ 6

Your task is to unpack the list writeyourcodehere into three variables, being first, middle, and last, with middle being everything in between the first and last element. Then print all three variables.

lst = [1, 2, 3, 4, 5, 6]

first ,\*middle,last = lst

first

middle

last

Question 4

Write a function that calculates the **factorial** of a number **recursively**.

### Examples

factorial(5) ➞ 120

factorial(3) ➞ 6

factorial(1) ➞ 1

factorial(0) ➞ 1

def factorial(n):

if n == 0:

return 1

return n \* factorial(n-1)

num = int(input('enter a number :'))

print("Factorial of", num, "is", factorial(num))

Question 5

Write a function that moves all elements of one type to the **end** of the list.

### Examples

move\_to\_end([1, 3, 2, 4, 4, 1], 1) ➞ [3, 2, 4, 4, 1, 1]

# Move all the 1s to the end of the array.

move\_to\_end([7, 8, 9, 1, 2, 3, 4], 9) ➞ [7, 8, 1, 2, 3, 4, 9]

move\_to\_end(["a", "a", "a", "b"], "a") ➞ ["b", "a", "a", "a"]

def move\_to\_end(array, toMove):

i = 0

# Mark the right pointer

j = len(array) - 1

# Iterate untill left pointer

# crosses the right pointer

while (i < j):

while (i < j and array[j] == toMove):

# decrement right pointer

j-=1

if (array[i] == toMove):

# swap the two elements

# in the array

array[i], array[j] = array[j] , array[i]

# increment left pointer

i += 1

# return the result

return array

arr = [7, 8, 9, 1, 2, 3, 4]

k = 9

ans = move\_to\_end(arr, k)

for i in range(len(arr)):

print(ans[i] ,end= " ")

arr = [1, 3, 2, 4, 4, 1]

k = 1

ans = move\_to\_end(arr, k)

for i in range(len(arr)):

print(ans[i] ,end= " ")

arr = ['a', 'a', 'a', 'b']

k = 'a'

ans = move\_to\_end(arr, k)

for i in range(len(arr)):

print(ans[i] ,end= " ")