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]

Ans. def filter\_list(list):

out\_string = []

for ele in list:

if type(ele) == int and ele >= 0:

out\_string.append(ele)

return out\_string

print(f'➞ {filter\_list([1, 2, "a", "b"])}')

print(f'➞ {filter\_list([1, "a", "b", 0, 15])}')

print(f'➞ {filter\_list([1, 2, "aasf", "1", "123", 123])}')

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"

Ans. def reverse(in\_string):

print(f'{in\_string} ➞ {in\_string[::-1].swapcase()}')

reverse('Hello World')

reverse("ReVeRsE")

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

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.

Ans. first, \*middle, last = [1,2,3,4,5,6]

print(f'first ➞ {first}')

print(f'middle ➞ {middle}')

print(f'last ➞ {last}')

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

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

Ans. def factorial(n):

if n==0:

return 1

return n \* factorial(n-1)

print(f'factorial(5) ➞ {factorial(5)}')

print(f'factorial(3) ➞ {factorial(3)}')

print(f'factorial(1) ➞ {factorial(1)}')

print(f'factorial(0) ➞ {factorial(0)}')

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"]

Ans. def move\_to\_end(list,num):

first\_end = []

second\_end = []

for ele in list:

if ele == num:

second\_end.append(ele)

else:

first\_end.append(ele)

first\_end.extend(second\_end)

return first\_end

print(f'move\_to\_end([1, 3, 2, 4, 4, 1], 1) ➞ {move\_to\_end([1, 3, 2, 4, 4, 1], 1)}')

print(f'move\_to\_end([7, 8, 9, 1, 2, 3, 4], 9) ➞ {move\_to\_end([7, 8, 9, 1, 2, 3, 4], 9)}')

print(f'move\_to\_end(["a", "a", "a", "b"], "a") ➞ {move\_to\_end(["a", "a", "a", "b"], "a")}')