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: ## and return a new list without the strings.  
#inputs  
list=[]  
k=int(input("enter the no of elements in the list : "))  
print("enter the elements which can be integers and strings ")  
for i in range(k):  
 ans=input("do you wish to enter an integer:yes/no")  
 if ans=='yes':  
 ele\_int=int(input())  
 list.append(ele\_int)  
 else:  
 ele=input()  
 list.append(ele)  
print("the original list : " ,list)  
def rep\_strings(list,k):  
 list\_new=list  
 print(k)  
 i=k-1  
 while(i>=0):  
 print(i)  
 if (type(list\_new[i])==str):  
 list\_new.pop(i)  
 i-=1  
 return(list\_new)  
print("the new list : " ,rep\_strings(list,k))

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 : ##The "Reverser" takes a string as input and returns that string in reverse order,  
##with the opposite case.  
#inputs  
str=input("enter a string : ")  
print("the original string : ")  
str\_rev=''  
for char in str:  
 str\_rev=char+str\_rev  
print("the reversed and case swaped string : ",str\_rev.swapcase())

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.

Ans: ##Your task is to unpack the list write your code here into three variables, being first, middle, and last, with middle being everything in between the first and last element.  
## Then print all three variables.  
#inputs  
list=[]  
k=int(input("enter the length of list : "))  
for i in range(k):  
 ele=input()  
 list.append(ele)  
print("The original string : ",list)  
first=list[0]  
middle=list[1:-1]  
last=list[-1]  
print("the segregated list : ",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

Ans: Ans: def recur\_factorial(n):  
 if n == 1:  
 return n  
 else:  
 return n\*recur\_factorial(n-1)  
# take input from the user  
num = int(input("Enter a number: "))  
# check is the number is negative  
if num < 0:  
 print("Sorry, factorial does not exist for negative numbers")  
elif num == 0:  
 print("The factorial of 0 is 1")  
else:  
 print("The factorial of",num,"is",recur\_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"]

Ans:

#Write a function that moves all elements of one type to the end of the list.  
#inputs  
list=[]  
k=int(input("enter the length of string : "))  
for i in range(k):  
 ele=input()  
 list.append(ele)  
print("the original string : ",list)  
unique=[]  
for i in list:  
 if i not in unique:  
 unique.append(i)  
occurences=[]  
for i in range(len(unique)):  
 c=0  
 c=list.count(unique[i])  
 occurences.append(c)  
temp=[]  
for i in unique:  
 temp.append(i)  
l=len(temp)-1  
while(l>=0):  
 if occurences[l]>1:  
 temp.pop(l)  
 l-=1  
sorted\_list=[]  
for i in temp:  
 sorted\_list.append(i)  
for i in range(len(unique)):  
 if occurences[i]>1:  
 for j in range(occurences[i]):  
 sorted\_list.append(unique[i])  
print(sorted\_list)