**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, &quot;a&quot;, &quot;b&quot;]) ➞ [1, 2]**

**filter\_list([1, &quot;a&quot;, &quot;b&quot;, 0, 15]) ➞ [1, 0, 15]**

**filter\_list([1, 2, &quot;aasf&quot;, &quot;1&quot;, &quot;123&quot;, 123]) ➞ [1, 2, 123]**

def filter\_list(l):

return [i for i in l if isinstance(i, int)]

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

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

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

**Question 2**

**The &quot;Reverser&quot; takes a string as input and returns that string in reverse order, with the**

**opposite case.**

**Examples**

**reverse(&quot;Hello World&quot;) ➞ &quot;DLROw OLLEh&quot;**

**reverse(&quot;ReVeRsE&quot;) ➞ &quot;eSrEvEr&quot;**

**reverse(&quot;Radar&quot;) ➞ &quot;RADAr&quot;**

def reverse(s):

return ''.join([c.swapcase() for c in s][::-1])

print(reverse("Hello World"))

print(reverse("ReVeRsE"))

print(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

print(first)

print(middle)

print(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 or n == 1:

return 1

else:

return n \* factorial(n-1)

print(factorial(5))

print(factorial(3))

print(factorial(1))

print(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"]**

def move\_to\_end(lst, elem):

left = 0

right = len(lst) - 1

while left < right:

while left < right and lst[right] == elem:

right -= 1

if lst[left] == elem:

lst[left], lst[right] = lst[right], lst[left]

else:

left += 1

return lst

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

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

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