Question1

Write a function that takes a list and a number as arguments. Add the number to the end of the list, then remove the first element of the list. The function should then return the updated list.

**Examples**

next\_in\_line([5, 6, 7, 8, 9], 1) ➞ [6, 7, 8, 9, 1]

next\_in\_line([7, 6, 3, 23, 17], 10) ➞ [6, 3, 23, 17, 10]

next\_in\_line([1, 10, 20, 42 ], 6) ➞ [10, 20, 42, 6]

next\_in\_line([], 6) ➞ "No list has been selected"

def next\_in\_line(actual\_list, adding\_list):

if not actual\_list:

print("No list has been selected")

else:

actual\_list.pop(0) # Remove the first element

actual\_list.append(adding\_list) # Add the new element to the end

print(actual\_list)

# Test cases

next\_in\_line([5, 6, 7, 8, 9], 1) # ➞ [6, 7, 8, 9, 1]

next\_in\_line([7, 6, 3, 23, 17], 10) # ➞ [6, 3, 23, 17, 10]

next\_in\_line([1, 10, 20, 42], 6) # ➞ [10, 20, 42, 6]

next\_in\_line([], 6) # ➞ "No list has been selected"

Question2

Create the function that takes a list of dictionaries and returns the sum of people's budgets.

### Examples

get\_budgets([

{ "name": "John", "age": 21, "budget": 23000 },

{ "name": "Steve", "age": 32, "budget": 40000 },

{ "name": "Martin", "age": 16, "budget": 2700 }

]) ➞ 65700

get\_budgets([

{ "name": "John", "age": 21, "budget": 29000 },

{ "name": "Steve", "age": 32, "budget": 32000 },

{ "name": "Martin", "age": 16, "budget": 1600 }

]) ➞ 62600

def get\_budgets(n):

total\_budget = sum(i['budget'] for i in n) # Summing up the 'budget' from each dictionary

print(total\_budget)

# Test cases

get\_budgets([

{ "name": "John", "age": 21, "budget": 23000 },

{ "name": "Steve", "age": 32, "budget": 40000 },

{ "name": "Martin", "age": 16, "budget": 2700 }

]) #65700

get\_budgets([

{ "name": "John", "age": 21, "budget": 29000 },

{ "name": "Steve", "age": 32, "budget": 32000 },

{ "name": "Martin", "age": 16, "budget": 1600 }

]) #62600

Question3

Create a function that takes a string and returns a string with its letters in alphabetical order.

### Examples

alphabet\_soup("hello") ➞ "ehllo"

alphabet\_soup("edabit") ➞ "abdeit"

alphabet\_soup("hacker") ➞ "acehkr"

alphabet\_soup("geek") ➞ "eegk"

alphabet\_soup("javascript") ➞ "aacijprstv"

def alphabet\_soup(n):

res= ''.join(sorted(n))

print(res)

alphabet\_soup("hello")#"ehllo"

alphabet\_soup("edabit")#"abdeit"

alphabet\_soup("hacker")# "acehkr"

alphabet\_soup("geek")#"eegk"

alphabet\_soup("javascript") # "aacijprstv"

Question4

Suppose that you invest $10,000 for 10 years at an interest rate of 6% compounded monthly. What will be the value of your investment at the end of the 10 year period?

Create a function that accepts the principal p, the term in years t, the interest rate r, and the number of compounding periods per year n. The function returns the value at the end of term rounded to the nearest cent.

For the example above:

compound\_interest(10000, 10, 0.06, 12) ➞ 18193.97

Note that the interest rate is given as a decimal and n=12 because with monthly compounding there are 12 periods per year. Compounding can also be done annually, quarterly, weekly, or daily.

### Examples

compound\_interest(100, 1, 0.05, 1) ➞ 105.0

compound\_interest(3500, 15, 0.1, 4) ➞ 15399.26

compound\_interest(100000, 20, 0.15, 365) ➞ 2007316.26

def compound\_interest(p, t, r, n):

# Calculate the compound interest

A = p \* (1 + r / n) \*\* (n \* t)

# Round to the nearest cent

return round(A, 2)

print(compound\_interest(100, 1, 0.05, 1)) # ➞ 105.0

print(compound\_interest(3500, 15, 0.1, 4)) # ➞ 15399.26

print(compound\_interest(100000, 20, 0.15, 365)) # ➞ 2007316.26

Question5

Write a function that takes a list of elements and returns only the integers.

### Examples

return\_only\_integer([9, 2, "space", "car", "lion", 16]) ➞ [9, 2, 16]

return\_only\_integer(["hello", 81, "basketball", 123, "fox"]) ➞ [81, 123]

return\_only\_integer([10, "121", 56, 20, "car", 3, "lion"]) ➞ [10, 56, 20, 3]

return\_only\_integer(["String", True, 3.3, 1]) ➞ [1]

def return\_only\_integer(n):

l = [] # Initialize an empty list to store integers

for i in n:

if isinstance(i, int) and not isinstance(i, bool): # Check if the element is an integer and not a boolean

l.append(i) # Append the integer to the list

return l # Return the list of integers

# Test cases

print(return\_only\_integer([9, 2, "space", "car", "lion", 16])) # ➞ [9, 2, 16]

print(return\_only\_integer(["hello", 81, "basketball", 123, "fox"])) # ➞ [81, 123]

print(return\_only\_integer([10, "121", 56, 20, "car", 3, "lion"])) # ➞ [10, 56, 20, 3]

print(return\_only\_integer(["String", True, 3.3, 1])) # ➞ [1]