Question1. Create a function that takes three arguments a, b, c and returns the sum of the numbers that are evenly divided by c from the range a, b inclusive.

**Examples**

evenly\_divisible(1, 10, 20) ➞ 0

# No number between 1 and 10 can be evenly divided by 20.

evenly\_divisible(1, 10, 2) ➞ 30

# 2 + 4 + 6 + 8 + 10 = 30

evenly\_divisible(1, 10, 3) ➞ 18

# 3 + 6 + 9 = 18

Ans. def evenDivisible(a,b,c):

divList = []

for num in range(a,b+1):

if num%c == 0:

divList.append(num)

print(f'{a,b,c} ➞ {sum(divList)}')

evenDivisible(1,10,20)

evenDivisible(1,10,2)

evenDivisible(1,10,3)

Question2. Create a function that returns True if a given inequality expression is correct and False otherwise.

### Examples

correct\_signs("3 < 7 < 11") ➞ True

correct\_signs("13 > 44 > 33 > 1") ➞ False

correct\_signs("1 < 2 < 6 < 9 > 3") ➞ True

Ans. def checkEquality():

in\_string = input('Enter the inequality: ')

out\_bool = eval(in\_string)

print(f'{in\_string} ➞ {out\_bool}')

for x in range(3):

checkEquality()

Question3. Create a function that replaces all the vowels in a string with a specified character.

### Examples

replace\_vowels("the aardvark", "#") ➞ "th# ##rdv#rk"

replace\_vowels("minnie mouse", "?") ➞ "m?nn?? m??s?"

replace\_vowels("shakespeare", "\*") ➞ "sh\*k\*sp\*\*r\*"

Ans. def replaceVowels():

vowels = ['a','e','i','o','u','A','E','I','O','U']

in\_string = input("String: ")

in\_string\_copy = in\_string

in\_char = input('Replacement character: ')

for ele in in\_string:

if ele in vowels:

in\_string = in\_string.replace(ele,in\_char)

print(f'{in\_string\_copy} {in\_char} ➞ {in\_string}')

for x in range(3):

replaceVowels()

Question4. 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**

**Hamming distance** is the number of characters that differ between two strings.

To illustrate:

String1: "abcbba"

String2: "abcbda"

Hamming Distance: 1 - "b" vs. "d" is the only difference.

Create a function that computes the **hamming distance** between two strings.

### Examples

hamming\_distance("abcde", "bcdef") ➞ 5

hamming\_distance("abcde", "abcde") ➞ 0

hamming\_distance("strong", "strung") ➞ 1

Ans. def genHamDistance():

in\_string\_1 = input('Enter the String\_1: ')

in\_string\_2 = input('Enter the String\_2: ')

if len(in\_string\_1) == len(in\_string\_2):

count = 0

for i in range(len(in\_string\_1)):

if in\_string\_1[i] != in\_string\_2[i]:

count = count+1

print(f'Hamning Distance b/w {in\_string\_1} and {in\_string\_2} ➞ {count}')

else:

print('Both Strings Must be of Same Length')

for x in range(3):

genHamDistance()