Question1

Create a function that takes a string and returns a string in which each character is repeated once.

**Examples**

double\_char("String") ➞ "SSttrriinngg"

double\_char("Hello World!") ➞ "HHeelllloo WWoorrlldd!!"

double\_char("1234!\_ ") ➞ "11223344!!\_\_ "

Question2

Create a function that reverses a boolean value and returns the string "boolean expected" if another variable type is given.

### Examples

reverse(True) ➞ False

reverse(False) ➞ True

reverse(0) ➞ "boolean expected"

reverse(None) ➞ "boolean expected"

Question3

Create a function that returns the **thickness (in meters)** of a piece of paper after folding it n number of times. The paper starts off with a thickness of **0.5mm**.

### Examples

num\_layers(1) ➞ "0.001m"

# Paper folded once is 1mm (equal to 0.001m)

num\_layers(4) ➞ "0.008m"

# Paper folded 4 times is 8mm (equal to 0.008m)

num\_layers(21) ➞ "1048.576m"

# Paper folded 21 times is 1048576mm (equal to 1048.576m)

Question4

Create a function that takes a single string as argument and returns an ordered list containing the indices of all capital letters in the string.

### Examples

index\_of\_caps("eDaBiT") ➞ [1, 3, 5]

index\_of\_caps("eQuINoX") ➞ [1, 3, 4, 6]

index\_of\_caps("determine") ➞ []

index\_of\_caps("STRIKE") ➞ [0, 1, 2, 3, 4, 5]

index\_of\_caps("sUn") ➞ [1]

Question5

Using list comprehensions, create a function that finds all even numbers from 1 to the given number.

### Examples

find\_even\_nums(8) ➞ [2, 4, 6, 8]

find\_even\_nums(4) ➞ [2, 4]

find\_even\_nums(2) ➞ [2]

**Solution: 1**

def double\_char(text):

return("".join([i\*2 for i in text]))

double\_char("String")

**Solution: 2**

def reverse(n):

if type(n)==bool:

if n==True:

return(False)

else:

return(True)

else:

print("Boolean expected")

reverse(False)

**Solution: 3**

import math

def num\_layers(n):

a = ((0.5\*(math.pow(2,n)))/1000)

return "Thickness of paper in mm is ", a

a = int(input("Enter a number "))

num\_layers(a)

**Solution: 4**

def index\_of\_caps(text):

text = list(text)

text\_list = []

for i in text:

if(i.isupper()==True):

a = text.index(i)

text\_list.append(a)

return(sorted(text\_list))

index\_of\_caps("sUn")

**Solution: 5**

def find\_even(n):

a = [i for i in range(0,n) if(i%2==0)]

return a

find\_even(10)