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)

Ans:

Sure! Here are the solutions to the questions you've asked:

Question 1: Create a function that repeats each character in a string once.

```python

def double\_char(txt):

return ''.join([c \* 2 for c in txt])

```

Question 2: Create a function that reverses a boolean value and returns an error message for other variable types.

```python

def reverse(b):

if isinstance(b, bool):

return not b

else:

return "boolean expected"

```

Question 3: Create a function that calculates the thickness of a folded piece of paper.

```python

def num\_layers(n):

thickness\_mm = 0.5 \* (2 \*\* n)

thickness\_m = thickness\_mm / 1000

return "{:.3f}m".format(thickness\_m)

```

Question 4: Create a function that returns the indices of all capital letters in a string.

```python

def index\_of\_caps(word):

return [i for i, c in enumerate(word) if c.isupper()]

```

Question 5: Create a function that finds all even numbers from 1 to a given number using list comprehensions.

```python

def find\_even\_nums(n):

return [i for i in range(1, n + 1) if i % 2 == 0]

```

These functions should give you the expected outputs for the given examples. Let me know if you need any further assistance!

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]