In [1]:
```
# Take a string "America is a country"


s = "America is a country"
print(s)
```

```
America is a country
```

In [2]:
```
# get the length of the String
T = len(s)
print(T)
```

```
20
```

In [3]:
```
# Casefold it
x = s.casefold()
print(x)
```

```
america is a country
```

In [4]:
```
# convert into lowercase
y = s.lower()
print(y)
```

```
america is a country
```

In [5]:
```
# get the number of a's
z = y.count("a")
print(z)
```

```
3
```

In [6]:
```
# get the number of vowels in it
c=0
vowel="AEIOUaeiou"
for i in s:
 if i in vowel:
  c+=1
print(c)




# replace space with "&"
new_string = s.replace(' ', '&')
print(new_string)

# get the sum of ascii numbers of every charcter
c = 0
for i in range(len(s)):
    (s[i], ord(s[i]))
    c += ord(s[i])
print(c)
```

```
8
America&is&a&country
1891
```

In [7]:
```
# check if that number is even or odd
a=int(input("enter a number:"))
if a%2==0:
    print("even")
else:
    print("odd")
```

```
# reverese the number as 523 from 325
print((str(a)[::-1]))
# check whether that number is divisible by 7
if a%7==0:
    print("divisible")
else:
    print("not divisible")
# reverse the whole string as 1."country is america" and 2.mirror image
print((str(s)[::-1]))

# create a list of 1,2,3,5,7,8,12
# Get the len, sum, min, max,mean,median and geometric  of the list
# ADD 1 element 25 to this list
# sort the list in ascending order
# take another variable called tempmax=max(sortedlist)
# sort that list in descending order
# get the last eleemnt in this descending order sorted list
# check if the element is equal to the minimum element in that list
# check how many numbers in the list are Even
# multiply every element with 2
# check number of even numbers in the list
# check divisibilty of 5 with every element
# get the count of numbers divisible by 7
# create another list which are first five multiples of 8 and add it to the previou
# sort the whole list in ascending order
# remove the last element using pop
# using for loop remove all the elements divisible by 4
```

```
enter a number:523
odd
325
not divisible
yrtnuoc a si aciremA
```

In [8]:
```
# reverse the whole string as 1."country is america" and 2.mirror image
print((str(s)[::-1]))
w = s.split()
reversed_sentence = ' '.join(w[::-1])
print(reversed_sentence)
```

```
yrtnuoc a si aciremA
country a is America
```

In [9]:
```
# create a list of 1,2,3,5,7,8,12
list_1=[1,2,3,5,7,8,12]
print(list_1)
```

```
[1, 2, 3, 5, 7, 8, 12]
```

In [10]:
```
# Get the len, sum, min, max,mean,median and geometric  of the list
x=len(list_1)
print(x)
d=0
for i in list_1:
    d+=i
print(d)
y=min(list_1)
print(y)
z=max(list_1)
print(z)
mean=d/x
print(mean)
#median
#geometric mean
```

```
7
38
1
12
5.428571428571429
```

In [11]:
```
# ADD 1 element 25 to this list
list_1.append(25)
print(list_1)
list_1.remove(25)
```

```
[1, 2, 3, 5, 7, 8, 12, 25]
```

In [12]:
```
# sort the list in ascending order
list_2=[15,75,22,37,42,19]
list_2.sort()
print(list_2)
```

```
[15, 19, 22, 37, 42, 75]
```

In [13]:
```
# take another variable called tempmax=max(sortedlist)
# sort that list in descending order
#tempmax =max(sorted list)
list_2.sort(reverse=True)
print(list_2)
```

```
[75, 42, 37, 22, 19, 15]
```

In [14]:
```
# get the last eleemnt in this descending order sorted list
# check if the element is equal to the minimum element in that list
a=list_2[-1]
print(a)
b=min(list_2)
if a==b:
    print("True")
else:
    print("False")
```

```
15
True
```

In [15]:
```
# check how many numbers in the list are Even
count=0
for i in list_2:
    if i%2==0:
        count+=1
print(count)
```

```
2
```

In [16]:
```
# multiply every element with 2
new_list=[]
for i in list_2:
    new_list.append(i*2)
print(new_list)
```

```
[150, 84, 74, 44, 38, 30]
```

In [17]:
```
# check number of even numbers in the list
# check divisibilty of 5 with every element
for i in new_list:
```

```
    if i%5==0:
        print("Divisible")
    else:
        print("not divisible")
```

```
Divisible
not divisible
not divisible
not divisible
not divisible
Divisible
```

In [18]:
```
# get the count of numbers divisible by 7
count=0
for i in new_list:
    if i%7==0:
        count+=1
print(count)
```

```
1
```

In [19]:
```
# create another list which are first five multiples of 8 and add it to the previou
list_3=[]
for i in range(1,6):
    d=i*8
    list_3.append(d)
print(list_3)
new_list.extend(list_3)
print(new_list)
```

```
[8, 16, 24, 32, 40]
[150, 84, 74, 44, 38, 30, 8, 16, 24, 32, 40]
```

In [20]:
```
# sort the whole list in ascending order
new_list = new_list[:5] + new_list[-1:]
print(new_list)
new_list.sort()
print(new_list)
list_3=[150, 84, 74, 44, 38, 30]
new_list.extend(list_3)
print(new_list)
unique_list = list(set(new_list))
print(unique_list)
unique_list.sort()
print(unique_list)
```

```
[150, 84, 74, 44, 38, 40]
[38, 40, 44, 74, 84, 150]
[38, 40, 44, 74, 84, 150, 150, 84, 74, 44, 38, 30]
[38, 40, 74, 44, 84, 150, 30]
[30, 38, 40, 44, 74, 84, 150]
```

In [21]:
```
# remove the last element using pop
# using for loop remove all the elements divisible by 4
unique_list.pop()
print(unique_list)
list_4=[]
for i in unique_list:
    if i%4!=0:
        list_4.append(i)
print(list_4)
```

```
[30, 38, 40, 44, 74, 84]
[30, 38, 74]
```

In [22]:
```
#Tuple:
#Functions:
#Create a fuction to add three numbers
#Create a function that takes in a string and checks if the string is a palindrome
#Create a function to that takes two numbers and return the square of the smaller
#Create a function that takes a string "America is a country" and returns a list o
```

In [23]:
```
#Create a tuple of length 6 and sort it in ascending and descending order
tuple_1=(1,2,3,4,5,6)
list_1=list(tuple_1)
list_1.sort()
tuple_2=tuple(list_1)
print(tuple_2)
list_1.sort(reverse=True)
tuple_3=tuple(list_1)
print(tuple_3)
```

```
(1, 2, 3, 4, 5, 6)
(6, 5, 4, 3, 2, 1)
```

In [24]:
```
#Get max, min, len and sum of the tuple
x=max(tuple_1)
print(x)
y=min(tuple_1)
print(y)
z=len(tuple_1)
print(z)
s=sum(tuple_1)
print(s)
```

```
6
1
6
21
```

In [25]:
```
#Remove the largest and smallest elements


modified_list = [i for i in list_1 if i != x and i != y]

modified_tuple = tuple(list_1)
print(modified_tuple)
```

```
(6, 5, 4, 3, 2, 1)
```

In [26]:
```
#Now, use the remianing elements and make a list out of them call it temp_list
#Create another list which is the square of the previois list
temp_list=list(modified_tuple)
result=[]
for i in temp_list:
    d=i**2
    result.append(d)
print(result)
temp_list=result
print(temp_list)
```

```
[36, 25, 16, 9, 4, 1]
[36, 25, 16, 9, 4, 1]
```

In [27]:
```
#using zip command, create another list such that the resulting list is equal to th
result_list=[]
for i in temp_list:
```

```
    d=i**3
    result_list.append(d)
#x=zip(result_list,temp_list)
print(result_list)
```

```
[46656, 15625, 4096, 729, 64, 1]
```

In [28]:
```
#apply the methods sort() and sorted() on temp_list, learn the difference
temp_list.sort()
print(temp_list)
new_list=sorted(temp_list)
print(new_list)
```

```
[1, 4, 9, 16, 25, 36]
[1, 4, 9, 16, 25, 36]
```

In [29]:
```
#Apply pop() and remove() on the temp_list and Be ready to explain the difference b
temp_list.pop()
temp_list.remove(16)
print(temp_list)
```

```
[1, 4, 9, 25]
```

In [30]:
```
#create two sets of length 5, must include the number 1 in themOne set should be so

list1=[]
list2=[]
for i in range(1,6):
    list1.append(i)
    d=i**2
    list2.append(d)
set1=set(list1)
print(set1)
set2=set(list2)
print(set2)
```

```
{1, 2, 3, 4, 5}
{1, 4, 9, 16, 25}
```

In [31]:
```
#Apply the methods on both of them:
#addremoveunionintersectiondifferenceissubset
set1.add(6)
print(set1)
set1.remove(6)
print(set1)
set3=set1.union(set2)
print(set3)
set4=set1.intersection(set2)
print(set4)
set5=set1.difference(set2)
print(set5)
is_subset = set1.issubset(set2)
print(is_subset)
```

```
{1, 2, 3, 4, 5, 6}
{1, 2, 3, 4, 5}
{1, 2, 3, 4, 5, 9, 16, 25}
{1, 4}
{2, 3, 5}
False
```

In [32]:
```
#create a dictionary of 5 country names as keys and values as their lengths of name
#getkeysvaluesitemsupdateclearpop
dict1={
    'United States': len('United States'),
```

```
    'Canada': len('Canada'),
    'Australia': len('Australia'),
    'Germany': len('Germany'),
    'Japan': len('Japan')
}

print(dict1)
```

```
{'United States': 13, 'Canada': 6, 'Australia': 9, 'Germany': 7, 'Japan': 5}
```

In [35]:
```
#getkeysvaluesitemsupdateclearpop
keys = dict1.keys()
print(keys)
values = dict1.values()
print(values)
items=dict1.items()
print(items)
other_dict={'Asia':4}
dict1.update(other_dict)
print(dict1)
dict1.pop('Asia')
print(dict1)
dict1.clear()
print(dict1)
```

```
dict_keys(['United States', 'Canada', 'Australia', 'Germany', 'Japan'])
dict_values([13, 6, 9, 7, 5])
dict_items([('United States', 13), ('Canada', 6), ('Australia', 9), ('Germany',
7), ('Japan', 5)])
{'United States': 13, 'Canada': 6, 'Australia': 9, 'Germany': 7, 'Japan': 5, 'Asi
a': 4}
{'United States': 13, 'Canada': 6, 'Australia': 9, 'Germany': 7, 'Japan': 5}
{}
```

In [36]:
```
#Create a fuction to add three numbers
def my_function(a,b,c):

    sum_of_numbers = a + b + c
    return sum_of_numbers

result=my_function(2, 5, 7)
print("Sum of three numbers:", result)
```

```
Sum of three numbers: 14
```

In [37]:
```
#Create a function that takes in a string and checks if the string is a palindrome
def is_palindrome(string):
    string = string.lower()
    string=string.replace(" ", "")
    string=string.strip(",.!?")
    reversed_string = string[::-1]
    if string == reversed_string:
        return True
    else:
        return False
input_string = input("Enter a string: ")
if is_palindrome(input_string):
    print("The string is a palindrome.")
else:
    print("The string is not a palindrome.")
```

```
Enter a string: radar
The string is a palindrome.
```

In [42]:
```
#Create a function to that takes two numbers and return the square of the smaller n
def my_function(a,b):
    for i in (a,b):
        d=min((a,b))
        square=d**2
        f=max((a,b))
        cube=f**3
        return square,cube
a = float(input("Enter the first number: "))
b = float(input("Enter the second number: "))
result = my_function(a,b)
square, cube = result
print("Square of the smaller number:", square)
print("Cube of the larger number:", cube)
```

```
Enter the first number: 2
Enter the second number: 3
Square of the smaller number: 4.0
Cube of the larger number: 27.0
```

In [44]:
```
#Create a function that takes a string "America is a country" and returns a list of
string = "America is a country"
list_string = list(string)

print(list_string)



word_list = string.split()

print(word_list)
```

```
['A', 'm', 'e', 'r', 'i', 'c', 'a', ' ', 'i', 's', ' ', 'a', ' ', 'c', 'o', 'u',
'n', 't', 'r', 'y']
['America', 'is', 'a', 'country']
```

In [ ]:
```

```