# Assignment 1

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* Set 1

### Q 1 : Odd man out(stray number)  
mylist = [6, 6, 6, 5, 6, 6, 6, 6]  
  
num\_1 = mylist[0]  
count\_num1 = 1  
count\_num2 = 0  
for i in range(len(mylist) - 1):  
 if num\_1 == mylist[i + 1]:  
 count\_num1 += 1  
 else:  
 count\_num2 += 1  
 num\_2 = mylist[i + 1]  
  
print("The unique element in the list is ", end=" ")  
if count\_num1 > count\_num2:  
 print(num\_2)  
else:  
 print(num\_1)

### Q 2 : The element close to mean of the list  
mylist = [21,1,2,3,4,5,6,7,8.5,9,10]

sum = 0

for i in range(len(mylist)) :

sum = sum + mylist[i]

mean = sum/len(mylist)

print("mean ", mean)

mylist.sort()

temp = mean - mylist[0]

arr = []

for i in range(len(mylist)):

arr.append(mean - mylist[i])

temp = arr[0]

for i in range(len(arr)) :

arr[i] = abs(arr[i])

for i in range(len(arr)-1) :

if temp < arr[i+1] :

pass

else :

temp = arr[i+1]

temp1 = arr.index(temp)

print("The number near to mean in list is ", mylist[temp1])

##### Q 3: The average speed with distance travelled for fixed time intervals

distance = [0, 0.1, 0.25, 0.65, 1.25, 2.75, 5] #in terms of km  
sum = 0.0  
time = 0  
for i in range(len(distance)):  
 sum += distance[i]  
 time += i  
  
print("The average speed is :", sum/time)

##### Q 4 : Number of people in a bus

num\_onboard = [10, 20, 35, 15, 8, 13]  
num\_alight = [0, 5, 17, 22, 12, 14]  
  
num\_onboarding = 0  
num\_alighting = 0  
num\_of\_people = 0  
for i in range(len(num\_onboard)):  
 num\_onboarding += num\_onboard[i]  
 num\_alighting += num\_alight[i]  
 num\_of\_people = num\_onboarding - num\_alighting  
  
print("Total number of people in the bus are", num\_of\_people)

#### Q 5: The missing number in the modified list

list\_original = [1,2,3,4,5,6,7,8,9]  
list\_modified = [1,2,3,4,6,7,8,9]  
  
flag = 0  
for i in range(len(list\_original)):  
 for j in range(len(list\_modified)):  
 if list\_original[i] == list\_modified[j]:  
 flag = 1  
 break  
 else:  
 flag = 0  
 if flag == 0:  
 num\_missing = list\_original[i]  
  
print("The missing element in the modified list is :", num\_missing)

##### Q 6: Difference between two lowest numbers

List1 = [25, 26, 99, 58, 43, 39]

for i in range(len(List1) - 1):  
 for j in range(len(List1) - 1):  
 if List1[j] > List1[j + 1]:  
 num = List1[j]  
 List1[j] = List1[j + 1]  
 List1[j + 1] = num  
  
print("The difference between the two lowest number is :", List1[1] – List1[0])

##### Q 7: Number of elements in the list smaller than the mean  
mylist = [92, 58, 9, 25, 86, 42, 65, 48, 99

mylist.sort()

sum = 0

for i in range(len(mylist)) :

sum = sum + mylist[i]

mean = sum/len(mylist)

print("list = ",mylist)

print("mean = ",mean)

count = 0

for i in range(len(mylist)) :

if mylist[i] < mean :

count = count + 1

print(count)

* Set 2:

#### Q 1: Malformed time string

time = "5:70:65"  
  
hour, min, sec = time.split(':')  
hour = int(hour)  
min = int(min)  
sec = int(sec)  
  
if sec >= 60:  
 sec-= 60  
 min += 1  
if min >= 60:  
 min -= 60  
 hour += 1  
if hour >= 24:  
 hour -= 24  
  
time\_correct = str(hour)+":"+str(min)+":"+str(sec)  
print("The corrected time string is :", time\_correct)

##### Q 2: Correct to malformed date string

date = "45/8/2018"  
  
dd, mm, yyyy = date.split("/")  
  
dd = int(dd)  
mm = int(mm)  
yyyy = int(yyyy)  
if dd > 31 and (mm == 1 or mm == 3 or mm == 5 or mm == 7 or mm == 8 or mm == 10 or mm == 12):  
 dd -= 31  
 mm += 1  
if dd > 30 and (mm == 4 or mm == 6 or mm == 9 or mm == 11):  
 dd -= 30  
 mm += 1  
if dd == 30:  
 dd -= 29  
 mm += 1  
if mm > 12:  
 yyyy += 1  
  
print("Corrected date :", dd,"/", mm, "/", yyyy)

####### Q 3: Conversion of IP address from "a.b.c.d" to integer and vice versa

IP\_address = "245.50.10.49"  
numbers = IP\_address.split(".")  
print(numbers)  
n1 = int(numbers[0])  
n2 = int(numbers[1])  
n3 = int(numbers[2])  
n4 = int(numbers[3])  
ip\_to\_int = (n1 \* (256 \*\* 3)) + (n2 \* (256 \*\* 2)) + (n3 \* (256 \*\* 1)) + (n4 \* (256 \*\* 0))  
print("Integer value of IP adress is :", ip\_to\_int)  
  
ip\_int = 4113828400  
i1 = int(ip\_int / 16777216) % 256  
i2 = int(ip\_int / 65536) % 256  
i3 = int(ip\_int / 256) % 256  
i4 = ip\_int % 256  
  
ip = str(i1) + "."+ str(i2) + "."+ str(i3) + "."+ str(i4)  
print("IP address of given integer value :", ip)  
  
  
####### Q 4: Check whether the given string is an isogram

String1 = "Ishwar"  
  
alphabet\_list = [0] \* 26  
for i in range(len(String1)):  
 c = String1[i].upper()  
 value = ord(c) - 65  
 count = alphabet\_list[value] + 1  
 alphabet\_list.insert(value, count)  
  
for alpha\_count in alphabet\_list:  
 if alpha\_count > 1:  
 flag = 0  
 break  
 else:  
 flag = 1  
  
if flag == 0:  
 print(String1, "is \"NOT AN ISOGRAM\"")  
else:  
 print(String1, " is an \"ISOGRAM\"")

####### Q 5: Find the Mexican wave

String1 = "ltts"  
Mexican\_wave = []  
for i in range(len(String1)):  
 String2 = ""  
 for j in range(len(String1)):  
 if i == j:  
 character = String1[j].upper()  
 else:  
 character = String1[j]  
 String2 += character  
 Mexican\_wave.append(String2)  
print("Mexican wave string is :", Mexican\_wave)

#### Q 6 : Find the largest by deleting a single digit

num = 784668  
  
num = str(num)  
minimum\_num = num[0]  
position\_num = 0  
largest\_num = ""  
for i in range(len(num)-1):  
 if num[i+1] < minimum\_num:  
 minimum\_num = num[i+1]  
 position\_num = i+1  
for i in range(len(num)):  
 if position\_num == i:  
 continue  
 largest\_num += num[i]  
  
print("The largest number possible after deleting a single digit :", largest\_num)

#### Q 7: The largest number by shuffling the digits

number = 784798  
  
number1 = str(number)  
number2 = list(number1)  
largest = ""  
for i in range(len(number2) - 1):  
 for j in range(len(number2) - 1):  
 if number2[j] < number2[j + 1]:  
 temp = number2[j]  
 number2[j] = number2[j + 1]  
 number2[j + 1] = temp  
  
for i in range(len(number2)):  
 largest += number2[i]  
print("The largest number after shuffling the digits :", largest)

#### Q 8: Compute the word frequency in a given message

String1 = "The word frequency is the number of occurrence"  
  
word\_list = String1.split(" ")  
frequency\_list = []  
i = 0  
for word in word\_list:  
 word = word.lower()  
 count = 0  
 for word1 in word\_list:  
 word1 = word1.lower()  
 if word == word1:  
 count += 1  
 frequency\_list.append(count)  
 i += 1  
  
print("the word list and the associated frequency of the word")  
print(word\_list)  
print(frequency\_list)  
  
  
##### Q 9: RGB to hex conversion and vice versa  
rgb = (255, 0, 255)  
rgb\_hex = '%02x%02x%02x' % rgb  
print("Hex value of the given RGB pair :", rgb\_hex)

#### Q 10 : Generating accumulated strings

String1 = "abcdef"  
String2 = ""  
temp\_string = ""  
for i in range(len(String1)):  
 c = String1[i].upper()  
 temp\_string = c + String1[i] \* i  
 String2 += (temp\_string)  
 if i < len(String1) - 1 :  
 String2 += "-"  
print("Accumulated String is", String2)