**Python Programming Assignment**

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**First Seven Questions:**

1. **In a given list of elements, all elements are equal except the one.Write a code to find the odd man out (Stray number)**

myList = [3, 3, 3, 9, 3, 3]

freq = {}

for item in myList:

    if (item in freq):

        freq[item] += 1

    else:

        freq[item] = 1

for key, value in freq.items():

    if value == 1:

        print(key)

1. **In a given list of elements, find the elements which is close to its mean**

myList = [1, 5, 10, 17, 12, 28]

sumVal = 0

for i in range(0, len(myList)):

    sumVal += myList[i]

meanVal = sumVal/len(myList)

minDiff = 10000

indexNum = 0

for i in range(0, len(myList)):

    diffVal = abs(meanVal - myList[i])

    if diffVal < minDiff:

        minDiff = diffVal

        indexNum = i

print("The closest value to mean is: ", myList[indexNum])

1. **Find the average speed of vehicle, given the distance travelled for fixed time intervals, e.g. [0, 0.1, 0.25, 0.45, 0.55, 0.7, 0.9, 1.0]**

myList = [0, 0.1, 0.25, 0.45, 0.55, 0.7, 0.9, 1.0]

sumOfDist = 0

for i in range(0, len(myList)):

    sumOfDist += myList[i]

avgSpeed = sumOfDist/len(myList)

print("The average spped is: ", avgSpeed)

1. **Find the no.of people in a bus, given the data of people onboarding & alighting at each station**
2. **Find the missing number, given the original list and modified one**

myListOriginal = [2, 5, 8, 12, 89, 24, 56, 78, 32]

myListModified = [2, 12, 89, 56, 32]

flag = 0

for i in range(0, len(myListOriginal)):

    flag = 0

    for j in range(0, len(myListModified)):

        if myListModified[j] == myListOriginal[i]:

            flag = 1

            break

    if flag == 0:

        print(myListOriginal[i])

1. **Find the difference between two lowest numbers in the list**

myList = [1, 5, 10, 17, 12, 28]

myList.sort()

print(myList[1] - myList[0])

1. **In a given list, count no.of elements smaller than their mean**

myList = [1, 5, 10, 17, 12, 28]

sumVal = 0

for i in range(0, len(myList)):

    sumVal += myList[i]

meanVal = sumVal/len(myList)

smallerThanMeanCount = 0

for i in range(0, len(myList)):

    if myList[i] < meanVal:

        smallerThanMeanCount += 1

print("The closest value to mean is: ", smallerThanMeanCount)

**Next Eleven Questions**

1. **Correct the malformed time string , for e.g "5:70:65" to "6:11:05"**
2. **Correct the malformed date string , for e.g. "45/8/2018" to "14/9/2018"**
3. **Convert ip address from "a.b.c.d" format into integer and vice versa**
4. **Check whether given string is isogram or not**

stringIso = "Python"

if len(stringIso) == len(set(stringIso.lower())):

    print("String is a Isogram")

else:

    print("Not iso")

1. **Given a string, find the mexican wave**

strInput = "genesisProgramFY2021"

n=3

l = len(strInput)

a = [[" " for x in range(l)] for y in range(l)]

row = 0

for i in range(l):

    a[row][i] = strInput[i];

    if row == n - 1:

        down = False

    elif row == 0:

        down = True

    if down == True:

        row = row + 1

    else:

        row = row - 1

for i in range(n):

    for j in range(l):

        print(str(a[i][j]), end = " ")

    print()

1. **Given a number, find the largest number by deleting single digit (order of digits will remain same)**

numToBeShuffled = 6358

for i in range(0, 1):

    ans = 0

    i = 1

    while numToBeShuffled // i > 0:

        temp = (numToBeShuffled//(i \* 10))\*i + (numToBeShuffled % i)

        i \*= 10

        if temp > ans:

            ans = temp

    numToBeShuffled = ans

print(numToBeShuffled)

1. **Given a number, find the largest number by shuffling the digits**

numberToBeShuffled = 38293367

count = [0 for x in range(10)]

string = str(numberToBeShuffled)

for i in range(len(string)):

    count[int(string[i])] = count[int(string[i])] +  1

result = 0

multiplier = 1

for i in range(10):

    while count[i] > 0:

        result = result + ( i \* multiplier )

        count[i] = count[i] - 1

        multiplier = multiplier \* 10

print(result)

1. **Compute the word frequency in given message**

str1 = 'genesis stepin genesis ltts embedded ltts embedded tra'

str1 = str1.split()

str2 = []

for i in str1:

    if i not in str2:

        str2.append(i)

for i in range(0, len(str2)):

    print('Frequency of', str2[i], 'is :', str1.count(str2[i]))

1. **RGB to Hex conversion and vice versa, e.g. (255,0,255) into 0xFF00FF**

def decToHexa(n):

    hexaDeciNum = ['0'] \* 100

    i = 0

    while (n != 0):

        temp = 0

        temp = n % 16

        if (temp < 10):

            hexaDeciNum[i] = chr(temp + 48)

            i = i + 1

        else:

            hexaDeciNum[i] = chr(temp + 55)

            i = i + 1

        n = int(n / 16)

    hexCode = ""

    if (i == 2):

        hexCode = hexCode + hexaDeciNum[0]

        hexCode = hexCode + hexaDeciNum[1]

    elif (i == 1):

        hexCode = "0"

        hexCode = hexCode + hexaDeciNum[0]

    elif (i == 0):

        hexCode = "00"

    return hexCode

R = 0

G = 255

B = 255

if ((R >= 0 and R <= 255) and (G >= 0 and G <= 255) and (B >= 0 and B <= 255)):

    hexCode = "#";

    hexCode = hexCode + decToHexa(R)

    hexCode = hexCode + decToHexa(G)

    hexCode = hexCode + decToHexa(B)

print(hexCode)

1. **Generate accumulated strings,e.g. abcd ==> A-Bb-Ccc-Dddd**

str1 = "abcd"

for i in range(0,len(str1)):

    currentIndex = i

    countOfIndex = i+1

    while countOfIndex:

        print(str1[currentIndex])

        countOfIndex -= 1