Name: Maurya Arun Shyamraj

PS no: 99004957

SFid: 265815

Email id: arun.maurya1@ltts.com

First Section

Q1 In a given list of elements, all elements are equal except the one. Write a code to find the odd man out (Stray number)

Code:

```
mylist=["hii","hii","hii","hii","hii","zzz","hii"]
mylist.sort()
k=len(mylist)
for i in range(k):
    if mylist[0]==mylist[1]:
        print("the odd one is " + mylist[k-1])
        break
    else:
        print("the odd one is " + mylist[0])
        break
```

Q2 In a given list of elements, find the elements which is close to its mean.

Code:

```
sum=0
mylist=[10, 20, 15, 17, 13, 7]

for i in range(len(mylist)):
    sum=sum+mylist[i]       #sum=82
average=sum/len(mylist)     #average=13.66666666

ref=abs(mylist[0]-average)
for i in range(len(mylist)):
```

```
    if ref>abs((mylist[i]-average)):
        ref=abs((mylist[i]-average))
        near=mylist[i]
print(near)
```

Q3 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]

Code:

```
distance=[0, 4, 6, 7, 3, 5, 8, 3] #Kilometer
time=[0, 0.1, 0.25, 0.45, 0.55, 0.7, 0.9, 1.0] #hour
#average speed= total distance/total time
total_distance,total_time=0,0
for i in range(len(distance)):
    total_distance=total_distance+distance[i]
    total_time=total_time+time[i]
average_speed=total_distance/total_time
print(average_speed) #km/hr
```

Q4 Find the no. of people in a bus, given the data of people on boarding & alighting at each station.

Code:

```
onboard=[20, 30, 22, 36, 40]
alight=[0, 15, 30, 15, 25, 17]
total_onboard,total_alight=0,0
for i in range(len(onboard)):
    total_onboard=total_onboard+onboard[i]
    total_alight=total_alight+alight[i]
no_of_people_in_bus=total_onboard-total_alight
print(no_of_people_in_bus)
```

Q5 Find the missing number given the original list and modified one

Code:

```
og_list=[5,3,55,74,65,12]
mod_list=[74,12,3,5,65]

og_list.sort()
mod_list.sort()
for i in range(len(mod_list)):
    if og_list[i]!=mod_list[i]:
        print(og_list[i])
        break
    elif og_list[len(mod_list)-1]==mod_list[len(mod_list)-1]:
        print(og_list[len(mod_list)])
        break
```

Q6 Find the difference between two lowest numbers in the list

Code:

```
my_list=[-2, 10, 9, 12, 4]
my_list.sort()
sum_of_min2=my_list[0]+my_list[1]
print(sum_of_min2)
```

Q7 In a given list, count no. of elements smaller than their mean

Code:

```
sum=0
mylist=[10, 20, 15, 17, 13, 7]

for i in range(len(mylist)):
    sum=sum+mylist[i]       #sum=82
average=sum/len(mylist)     #average=13.66666666
count=0
for i in range(len(mylist)):
```

```
    if mylist[i]<average:
        count=count+1
print(count)
```

Second Section

Q1 Correct the malformed time string for e.g. "5:70:65 to "6:11:05

Code:

```
time="5:70:65"
hours=int(time[0])
minutes=int(time[2:4])
seconds=int(time[5:7])
if seconds>60:
    seconds=seconds%60
    minutes=minutes+1
if minutes>60:
    minutes=minutes%60
    hours=hours+1
if minutes<10 and seconds>10:
    print(str(hours)+":0"+str(minutes)+":"+str(seconds))
elif minutes>10 and seconds<10:
    print(str(hours)+":"+str(minutes)+":0"+str(seconds))
elif minutes>10 and seconds>10:
    print(str(hours)+":"+str(minutes)+":"+str(seconds))
elif minutes<10 and seconds<10:
    print(str(hours)+":0"+str(minutes)+":0"+str(seconds))
elif minutes==0 and seconds==00:
    print(str(hours)+":00:00")
elif minutes==0 and seconds>10:
    print(str(hours)+":00:"+str(seconds))
elif minutes==0 and seconds<10:
```

```
    print(str(hours)+":00:0"+str(seconds))
elif minutes>10 and seconds==0:
    print(str(hours)+":"+str(minutes)+":00")
elif minutes<10 and seconds==0:
    print(str(hours)+":0"+str(minutes)+":00")
```

Q2 Correct the malformed date string, for e.g. 45/8/2018" to "14/9/2018"

Code:

```
date="45/08/2018"
dd=int(date[0:2])
mm=int(date[3:5])
yyyy=int(date[6:10])
if mm==1 or mm==3 or mm==5 or mm==7 or mm==8 or mm==10 or mm==12:
    if dd>31:
        dd=dd%31
        mm=mm+1
elif mm==2 and yyyy%4==0:
    if dd>28:
        dd=dd%28
        mm=mm+1
elif mm==2 and yyyy%4!=0:
    if dd>29:
        dd=dd%29
        mm=mm+1
else:
    if dd>30:
        dd=dd%30
        mm=mm+1
print(str(dd)+"/"+str(mm)+"/"+str(yyyy))
```

Q3 Convert ip address from “a.b.c.d” format into integer and vice versa

Code:

```
ip1_alpha="a.c.u.g"
num=['1','2','3','4','5','6','7','8','9','10','11','12','13','14','15','16','17',
'18','19','20','21','22','23','24','25','26']
char=['a','b','c','d','e','f','g','h','i','j','k','l','m','n','o','p','q','r','s',
't','u','v','w','x','y','z']
first=ip1_alpha[0]
second=ip1_alpha[2]
third=ip1_alpha[4]
fourth=ip1_alpha[6]
for i in range(len(num)):
    if char[i]==first:
        f_c=num[i]
    elif char[i]==second:
        s_c=num[i]
    elif char[i]==third:
        t_c=num[i]
    elif char[i]==fourth:
        fo_c=num[i]
print(f_c+"."+s_c+"."+t_c+"."+fo_c)
ip2_num="5.25.9.11"
first=ip2_num[0]
second=ip2_num[2:4]
third=ip2_num[5]
fourth=ip2_num[7:9]
for i in range(len(num)):
    if num[i]==first:
        f_n=char[i]
    elif num[i]==second:
        s_n=char[i]
    elif num[i]==third:
```

```
        t_n=char[i]
    elif num[i]==fourth:
        fo_n=char[i]
print(f_n+"."+s_n+"."+t_n+"."+fo_n)
```

Q4 Check whether given string is isogram or not

Code:

```
string=str(input("Enter the string : "))
count=-len(string)
for i in range(len(string)):
    for j in range(len(string)):
        if string[i]==string[j]:
            count=count+1
if count>0:
    print("The string is Isogram")
else:
    print("The string is not Isogram")
```

Q5 Given a string, find the Mexican wave

Code:

```
cap=['A','B','C','D','E','F','G','H','I','J','K','L','M','N','O','P','Q','R','S',
'T','U','V','W','X','Y','Z']
char=['a','b','c','d','e','f','g','h','i','j','k','l','m','n','o','p','q','r','s',
't','u','v','w','x','y','z']

string = "arun"
sec_string=[]
mex_wave=[]
for i in string:
    for j in range(len(num)):
        if i==char[j]:
            sec_string.append(cap[j])
```

```
for i in range(len(string)):
    temp=list(string)
    temp[i]=sec_string[i]
    temp=''.join(temp)
    mex_wave.append(temp)
print(mex_wave)
```

Q6 Given a number, find the largest number by deleting single digit (order of digits will remain same)

Code:

```
num=int(input("enter number: "))
large=0
for i in range(len(str(num))):
    rem=num%10
    num=num/10
    if rem>large:
        large=rem
print(int(large))
```

Q7 Given a number, find the largest number by shuffling the digits

Code:

```
num=input("enter number: ")
large=num[0]
for i in range(len(num)):
    if num[i]>large:
        large=num[i]
print(large)
```

Q8 Compute the word frequency in given message

Code:

```
string = 'arun deep dhwanil arun arun dhwanil'


string=string.split()
sec_string=[]
for i in string:
    if i not in sec_string:
        sec_string.append(i)
for i in range(0,len(sec_string)):
    print("frequency of", sec_string[i] , "is :" , string.count(sec_string[i]))
```

Q9 RGB to Hex conversion and vise versa, e.g. (255,0,255) into OXFFOOFF

Code:

```
RGB=(255,0,255)
Hex=['0','1','2','3','4','5','6','7','8','9','A','B','C','D','E','F']
num=['0','1','2','3','4','5','6','7','8','9','10','11','12','13','14','15']
R1=int(RGB[0]/16)
R2=RGB[0]%16
G1=int(RGB[1]/16)
G2=RGB[1]%16
B1=int(RGB[2]/16)
B2=RGB[2]%16
print("RGB2Hex : 0x"+Hex[R1]+Hex[R2]+Hex[G1]+Hex[G2]+Hex[B1]+Hex[B2])
Hexa="0xFF00FF"
H1=Hexa[2]
H2=Hexa[3]
H3=Hexa[4]
H4=Hexa[5]
H5=Hexa[6]
H6=Hexa[7]
for i in range(len(Hex)):
```

```
    if H1==Hex[i]:
        H1n=int(num[i])
    if H2==Hex[i]:
        H2n=int(num[i])
    if H3==Hex[i]:
        H3n=int(num[i])
    if H4==Hex[i]:
        H4n=int(num[i])
    if H5==Hex[i]:
        H5n=int(num[i])
    if H6==Hex[i]:
        H6n=int(num[i])
hexr=str((H1n*16)+H2n)
hexg=str((H3n*16)+H4n)
hexb=str((H5n*16)+H6n)
print("Hex2RGB : ("  + hexr +"," + hexg +","+ hexb+")")
```

Q10 Generate accumulated strings, e.g. abcd ➔ Aa-Bb Ccc-Dddd

Code:

```
num=['1','2','3','4','5','6','7','8','9','10','11','12','13','14','15','16','17',
'18','19','20','21','22','23','24','25','26']
char=['a','b','c','d','e','f','g','h','i','j','k','l','m','n','o','p','q','r','s',
't','u','v','w','x','y','z']
cap=['A','B','C','D','E','F','G','H','I','J','K','L','M','N','O','P','Q','R','S',
'T','U','V','W','X','Y','Z']

str="arun"
for i in str:
    for j in range(26):
        if i==char[j]:
            print(cap[j]+char[j]*(j)+"-",end='')
```