

```

001 | #Exercice n°1
002 | def list_inv(n):
003 |     return([1/k for k in range(1,n+1)])
004 |
005 | def list_harm(n):
006 |     L=[]
007 |     acc=0
008 |     for j in range(1,n+1):
009 |         acc+=1/j
010 |         L.append(c)
011 |     return(L)
012 |
013 | #Exercice n°2
014 | def somme(L):
015 |     acc=0
016 |     for e in L:
017 |         acc+=e
018 |     return(acc)
019 |
020 | def moyenne(L):
021 |     acc=0
022 |     for e in L:
023 |         acc+=e
024 |     return(acc/len(L))
025 |
026 | def mediane(L):
027 |     if len(L)%2!=0:
028 |         return(L[len(L)//2])
029 |     else:
030 |         return((L[len(L)//2-1]+L[len(L)//2])/2)
031 |
032 | def indice_maximum(L):
033 |     max=L[0]
034 |     indice=0
035 |     for i in range(1,len(L)):
036 |         if L[i]>max:
037 |             indice=i
038 |             max=L[i]
039 |     return(max,i)
040 |
041 | def indices_minimum(L):
042 |     min=L[0]
043 |     L_indices=[0]
044 |     for i in range(1,len(L)):
045 |         if L[i]==min:
046 |             L_indices.append(i)
047 |         if L[i]<min:
048 |             L_indices=[i]
049 |             min=L[i]
050 |     return(min,L_indices)
051 |
052 | def decalage_droite(L):
053 |     L1=[L[len(L)-1]]
054 |     for i in range(1,len(L)):
055 |         L1=L1+[L[i-1]]
056 |     L=L1
057 |     return(L)
058 |
059 | #Exercice n°3
060 | def longueur(chaine):
061 |     cpt=0
062 |     for car in chaine:
063 |         cpt+=1
064 |     return(cpt)
065 |
066 | def recherche_e(chaine):
067 |     cpt=0

```

```

068|     for car in chaine:
069|         if car=='e':
070|             cpt+=1
071|     return(cpt)
072|
073| def stat(texte):
074|     lettres={}
075|     for c in texte:
076|         if c not in " ,;:!?." :
077|             if c in lettres:
078|                 lettres[c]=lettres[c]+1
079|             else:
080|                 lettres[c]=1
081|     return(lettres)
082|
083| #Exercice n°4
084| liste=[[i,i] for i in range(10**6)]
085| from random import shuffle
086| shuffle(liste)
087| dico=dict(liste)
088|
089| def recherche1(liste,k):
090|     for elt in liste:
091|         if elt[0]==k:
092|             return elt[1]
093|
094| def recherche2(dico,k):
095|     if k in dico:
096|         return(dico[k])
097|
098| from time import time
099|
100| st=time()
101|
102| for i in range (50):
103|     recherche1(liste,i)
104| print(time()-st)
105|
106| st=time()
107| for i in range(50):
108|     recherche2(dico,i)
109| print(time()-st)

```