

Exo6

```
In [ ]: def echange(liste,i,j):  
        liste[i],liste[j] = liste[j],liste[i]
```



```
In [ ]: def min_liste(liste,ind):  
        elt_min = liste[ind]  
        ind_min=ind  
        for k in range(ind,len(liste)):  
            if liste[k]<elt_min:  
                elt_min=liste[k]  
                ind_min=k  
        return ind_min
```



```
In [ ]: def tri_selection(liste):  
        liste_nouv=[]  
        for elt in liste:  
            liste_nouv.append(elt)  
        longueur = len(liste_nouv)  
        for ind in range(longueur):  
            ind_min = min_liste(liste_nouv,ind)  
            echange(liste_nouv,ind,ind_min)  
        return liste_nouv
```



```
In [ ]: L=[12,19,10,13,11,15,9,14]
```



```
In [ ]: L1=tri_selection(L)  
        print(L)  
        print(L1)
```



```
In [ ]: def tri_insertion(liste):  
        liste_nouv=[]  
        for elt in liste:  
            liste_nouv.append(elt)  
        for ind in range(0,len(liste_nouv)-1):  
            j = ind  
            while liste_nouv[j+1]<liste_nouv[j] and j>=0:  
                echange(liste_nouv,j,j+1)  
                j=j-1  
        return liste_nouv
```



```
In [ ]: L2=tri_insertion(L)  
        print(L)  
        print(L2)
```

