# Les algorithmes de tri

## I. Le tri par sélection

```
#---------------------------------- tri selection
def posMin(T,n,k):
    pmin = k
    for i in range(k+1,n):
        if T[i]<T[pmin]:
            pmin = i
    return pmin

def triSelection(T,n):
    for i in range(n-1):
        pmin = posMin(T,n,i)
        temp = T[pmin]
        T[pmin]= T[i]
        T[i] =temp
```

## II. Le tri à bulles

```
def triBulle(T,n):
    echange = True
    while echange==True :
        echange = False
        for i in range(n-1):
            if T[i]>T[i+1]:
                temp = T[i]
                T[i]= T[i+1]
                T[i+1] =temp
                echange = True
        n =n-1
```

## III. Le tri à bulles

```
# ----------------------- triInsertion version1
def triInsertion(T,n):
    for i in range(1,n):
        cle  = T[i]
        j = i-1
        while j>=0 and T[j]>cle:
            T[j+1]=T[j]
            j = j-1
        T[j+1] = cle
# ----------------------- triInsertion version2
def triInsertion(t,n):
    for i in range(1,n):
        cle = t[i]
        decaler(t,i,cle)

# -------------------procédure décaler
def decaler(t,d,x):
    j = d-1
    while (t[j]> x) and (j>=0):
        t[j+1] = t[j]
        j = j-1
    t[j+1] = x
```

## VI. Le tri Shell

```
def triShell(T,n):
    p = 0
    while (p<n):
        p = p*3+1
    while p>1:
        p = p // 3
        for i in range(p,n):
            cle  = T[i]
            j = i-p
            while j>=0 and T[j]>cle:
                T[j+p]=T[j]
                j = j-p
            T[j+p] = cle
```

# Calcul d'air

```
#---------------------------------milieu
def AirMilieu(a,b,n):
    s = 0
    h = (b-a)/n
    x = a + h/2
    for i in range(n):
        s = s + F(x)*h
        x = x + h
    return s
#---------------------------------gauche
def AirGauche(a,b,n):
    s = 0
    h = (b-a)/n
    x = a
    for i in range(n):
        s = s + F(x)*h
        x = x + h
    return s
```

```
#---------------------------------gauche
def AirDroite(a,b,n):
    s = 0
    h = (b-a)/n
    x = a+h
    for i in range(n):
        s = s + F(x)*h
        x = x + h
    return s
#---------------------------------trapeze
def AirTrapeze(a, b, n):
    s = 0
    h = (b-a)/n
    x = a
    for i in range(n):
        s = s + (F(x) + F(x+h))*h/2
        x = x + h
    return s
```