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def creer_pile():
    return []

def pile_vide(p):
    return len(p)==0

def sommet(p):
    if not pile_vide(p):
        return p[-1]

p = creer_pile()
if sommet(p) :
    s = 2 + sommet(p)

def taille(p):
    return len(p)

def empiler(p,x):
    p.append(x)

x = 3
empiler(p,x)

def depiler(p):
    if not pile_vide(p):
        r = p.pop()
        return r
    else:
        raise Exception("Pile vide")

def depiler1(p):
    assert len(p)>0
    return p.pop()

try :
    s = depiler(p)
except :
    print("Pile vide")
else:
    r = s + 2

# ex1
def conversion(n):
    if n==0 : return '0b0'
    p = creer_pile()
    while n!= 0:
        n,r = n//2,n%2
        empiler(p,r)
    result = '0b'
    while taille(p)>0:
        result += str(depiler(p))
    return result

# ex 2
def verif_parenthese(ch):
    p = creer_pile()
    L = []
    for i in range(len(ch)):
        if ch[i] == '(': empiler(p,i)
        elif ch[i] == ')':
            if pile_vide(p): return False
            L += [(depiler(p),i)]

    return L if pile_vide(p) else False

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