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'''
Chp1 : TP N°2 Les Piles
Groupe : Ipein/SP3/GB
Date : 23-09-2023
'''

# Pile
def creer_pile():
    p = [] # p = list()
    return p # return []

def pile_vide(p):
    return len(p) == 0 # return p == []

def sommet(p):
    if not pile_vide(p):
        return p[-1] # p[len(p)-1]
    #return None

#utilisation
p = creer_pile()
s = sommet(p)
if s != None:
    s = s + 5

def taille(p):
    return len(p)

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

#utilisation
p = creer_pile()
empiler(p,2)

def depiler(p):
    return p.pop()

#utilisation
p = creer_pile()
try:
    depiler(p)
except IndexError:
    print("pile vide")

# EX1
def conversion(n):
    assert type(n)==int
    p = creer_pile()

    if n==0 : return '0b0'

    while n != 0:
        r , n = n % 2, n // 2
        empiler(p,r)

    ch = '0b'
    while taille(p)>0:
        ch = ch + str(depiler(p))

    return ch

# Ex 2

def verif_parentheses(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)]

    if pile_vide(p) : return L
    return False

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