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def vigenere_chiffre_nb(x,a,b):
    return (a*x+b)%26

def inverse(a):
    y=0
    while (a*y%26!=1):
        y=y+1
    return y

def vigenere_dechiffre_nb(x,a,b):
    return (inverse(a)*(x-b))%26

def vigenere_chiffre_mot(mot,a,b):
    message_code = []
    for lettre in mot:
        nb = ord(lettre)-65
        nb_crypte = vigenere_chiffre_nb(nb,a,b)
        lettre_crypte = chr(nb_crypte+65)
        message_code.append(lettre_crypte)
    message_code = "".join(message_code)
    return(message_code)

def vigenere_attaque(mot):
    for a in range(26):
        print(vigenere_dechiffre_mot(mot,a,1))
    return None

def vigenere_dechiffre_mot(mot,a,b):
    message_code = []
    for lettre in mot:
        nb = ord(lettre)-65
        nb_clair = vigenere_dechiffre_nb(nb,a,b)
        lettre_clair = chr(nb_clair+65)
        message_code.append(lettre_clair)
    message_code = "".join(message_code)
    return(message_code)

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