

## Partie IV

Représentation des paries de N et quelques algorithmes

```
def carres(N):
    C = [0 for _ in range(N+1)]
    i = 0
    while i*i <= N:
        C[i*i] = 1
        i += 1
    return C

def eratosthene(N):
    tab = [1 for _ in range(N+1)]
    tab[1] = 0
    i = 2
    while i <= N:
        j = 2 * i
        while j <= N:
            tab[j] = 0
            j += i
        i += 1
    return tab

def somme(A, B, N):
    C = [0 for _ in range(N+1)]
    for i in range(N+1):
        for j in range(N-i+1):
            if A[i]*B[j] == 1:
                C[i+j] = 1
    C[0] = 1
    return C

def quatreCarres(N):
    C = carres(N)
    C = somme(C, C, N)
    C = somme(C, C, N)
    i = 0
    while (i < N) and (C[i] == 1):
        i += 1
    return (i == N)

N = 100
print(carres(N))
print(eratosthene(N))
print(quatreCarres(N))
```