

## 2022 sujet 7

**Exercice 1**

```
def conv_bin(n):  
    b = []  
    bit = 0  
    while n != 0:  
        bit += 1  
        b.append(n % 2)  
        n = n // 2  
    b.reverse()  
    return b, bit
```

**Exercice 2**

```
def tri_bulles(T):  
    n = len(T)  
    for i in range(n-1, 0, -1):  
        for j in range(i):  
            if T[j] > T[j+1]:  
                temp = T[j]  
                T[j] = T[j+1]  
                T[j+1] = temp  
    return T
```