**Algorithm 3.1.30** Find all modes from a list of nondecreasing integers

```
1: procedure MULTI MODE(a_1, a_2, ..., a_n: list of nondecreasing integers)
2:     modes ← ∅                                              ▷ multi-mode set
3:     count ← 1                  ▷ number of occurrences for entry in sublist
4:     frequency ← 2    ▷ threshold for entry into the [a_i] sublist mode set
5:     for i = 1 to n − 1 do
6:         if a_i ≠ a_{i+1} then count ← 1 else count += 1
7:         if count > frequency then                          ▷ found the sublist mode
8:             frequency ← count                          ▷ Overwrite mode frequency
9:             modes ← {a_i}          ▷ Previous elements are not multi-modes
10:        else if count = frequency then  ▷ addendum a_i to sublist mode
11:            modes ← modes ∪ {a_i}
12:        end if
13:    end for
14:    return modes      ▷ The set containing all modes from the input list
15: end procedure
```