```
1: procedure MAP(k, d)
2:     INITIALIZE.ASSOCIATIVEARRAY(H)
3:     for all t ∈ d do
4:         H{t} ← H{t} + 1
5:     for all t ∈ H do
6:         EMIT(t, ⟨k, H{t}⟩)
1: procedure REDUCE(t, [⟨k₁, f₁⟩, ⟨k₂, f₂⟩ …])
2:     INITIALIZE.LIST(P)
3:     for all ⟨k, f⟩ ∈ [⟨k₁, f₁⟩, ⟨k₂, f₂⟩ …] do
4:         APPEND(P, ⟨k, f⟩)
5:     SORT(P)
6:     EMIT(t, P)
```