This strange little sorting algorithm runs in linear time. It has its limitation: the values in the array c to be sorted are in the range 0..b-1, for some given b. It is called *Counting sort* because it counts (and then uses) the number of times each value occurs in c. After describing the basic algorithm, we revise it into a subroutine used in another important linear-time sorting algorithm, *radix sort*.

**How counting sort works**

The method creates an array res that contains the elements of input array c, but sorted. Here is an outline: