Counting Sort

ZPRAC-16-17-Lab7

[40 Points]
Counting Sort

ANNOUNCEMENT: Up to 20% marks will be allotted for good programming practice. These include
- Comments for non trivial code
- Indentation: align your code properly
- Use of functions

Write a C program to sort the given array according to the algorithm described below.

You are given the number of items n followed by a list of n integers denoting the costs. You have to print the costs in sorted order using only the following algorithm. It is given that the costs are between 0 and 19, both inclusive. The number of items can be at most 10000.

Algorithm : Counting sort
1. Construct an array to store the counts of each unique element in the input (Note that each element lies between 0 and 19). Print this array of counts.
2. Print each unique element as many times as its count value (separated by commas).
For example, if count of 0s is two, print 0 two times

Example:
Input :
5
1 2 4 5 1
Output:
0,2,1,0,1,1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,
1,1,2,4,5,

Input :
7
0 5 2 1 8 5 6
Output:
1,1,1,0,0,2,1,0,1,0,0,0,0,0,0,0,0,0,0,0,
0,1,2,5,5,6,8,

Constraints :
1 <= n <= 10000