Problem 3: Stack
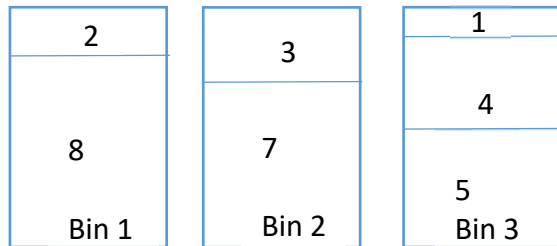
Consider you have n items of sizes s1, s2, ... sn. All sizes satisfy 0<si<=10. Pack these items in the fewest number of bins, given that each bin has a capacity of 10. We have an unlimited number of bins. We propose to use an approximate method to fill these items as follow: sort the items in decreasing order and then scan the bins in order and place the new item in the tightest spot among all bins

Bin 1	Bin 2	Bin 3
2	3	1
8	7	4
		5

instead of placing it in the first spot found. Thus, a new bin is created only when the results of previous placements have left no other alternative. Each bin is represented by a stack. You can use C++ stack STL. It is possible to use an array of stacks.

Example: consider the following 7 items: 2, 5, 4, 7, 1, 3, 8. After sorting in descending order: 8, 7, 5, 4, 3, 2, 1. We insert 8 in bin 1, then 7 in bin 2, 5 in bin 3; 4 in bin 3; 3 in bin 2; 2 in bin 1; 1 in bin 3.

  ➢ Write a C++ program that solves this problem, given n items with random size, then output the number of bins used and the content of these bins. Give the complexity of your method.