Randomized QuickSort

Implement the randomized version of QUICKSORT algorithm, that is, you must choose a random pivot from the elements in $A[p...r]$ when partitioning the subarray. For more details, see page 179 of the textbook. This webpage describes a simple way to obtain a random integer.

Input structure   The input starts with an integer number which indicates the number of elements (integers) to be sorted, n. Then, the elements follow, one per line.

Output structure   Output the elements in non-decreasing order. Each element must be followed by ;.