Quick-Sort

Description This is the second half of Lab04 and is worth 50 points. In this lab assignment (Lab04-2), your job is to implement the randomized version of Quick-sort. 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. The following webpage describes a simple way to obtain a random integer: `http://www.cplusplus.com/reference/cstdlib/rand/`

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 ;.

Examples of input and output:

Input

```
6
5
3
2
1
6
4
```

Output

```
1;2;3;4;5;6;
```

Note that the output is only one line and has no white characters.

See the lab guidelines for submission/grading, etc., which can be found in Files/Labs.