

## Q2

This is done by a "double QuickSort" as follows. Pick a nut and use it as a pivot to split the bolts into three groups: those for the nuts was too large, those for the nuts was fitted and those for the nuts was too small. Then pick a bolt which is fitted and let this bolt try all the nuts, splitting the nuts in three groups as well: nuts that are too small, nuts that fit this bolt and the nuts which were too large. Continue this process with the first group of nuts and first group of bolts and then also the third group of nuts with the third group of bolts.

This algorithm runs in the expected time  $O(n \log n)$ .