

Since I used bubble sort, the best case scenario is $O(n)$ and worst case is $O(n^2)$. The best case scenario for a sorting technique is $O(n \log n)$.

There is a possibility for a linear time solution for this problem, but it is probably unlikely since those types of sorts require certain conditions to be fulfilled and those conditions aren't easy. For example the radix sort can be linear if you have a fixed maxed length for your keys.