1. Suppose we have n English words (26-letter alphabet), where the combined length of all words is ℓ. Give an algorithm to sort the strings in $O(\ell)$ time in lexicographical ordering, e.g., "a" < "ab" < "b".

2. Suppose we have an array $\mathcal{A}$ of numbers such that $\mathcal{A}[i] = ai + b$ with $a > 0$ and b as real numbers. Show that interpolation search always achieves a runtime of $O(1)$ with $\mathcal{A}$, regardless of whether the target is in the array or not.