CS 240: Data Structures and Data Management **Winter 2021**

Tutorial 6: March 8

1. Suppose we have an array $\mathcal{A}$ of numbers such that $\mathcal{A}[i] = t\sqrt{i}$ for $0 \leq i \leq n-1$ and some positive number t. Show that, using interpolation search, searching for t in $\mathcal{A}$ takes $O(\log \log n)$ time.

2. Draw the compressed trie containing the following keys: 10, 101, 1001, 10010, 10011, 1110, 1111, 11100, 111110, 111101.

3. 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".