

1 December 2022

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1. **Warm up:** Answer the following questions.
  - (a) Given two different strings of length  $n$ , what is the largest / smallest trie that can be made from them?
  - (b) Sets of what length will give perfect skip lists?
  
2. Consider the strings `referee` and `sleeveless`.
  - (a) Construct the trie of all left substrings of each string. This is called the *suffix trie*.
  - (b) In terms of the number of edges, how will the suffix trie of `referee` change if the third character `f` is changed to `r`?
  - (c) Combine the tries you made in part (a) together.
  
3. Given a list of 8 elements, there will be 3 levels in a *skip list* of these 8 elements. How many ways to choose the height of every node are there?
  
4. **Bonus:** Construct a trie for all the words in the file `lorem_ipsum.txt` on ORTUS.