Presentation

Part 1: Searching for food type

Data structure: **Trie data structure**

- Used Trie data structure, which stores the data in particular fashion, where retrieval of data becomes much faster and helps in performance.
- Apparently, Tire data structure is most suited for application where retrieval of data which are more frequently performed i.e. Autocomplete functionality with respect to prefix of a string and similarly, saves time during user entry.
- Additionally, user doesn't know the complete spelling of the word but knows few letters, then rest of words starting with prefix, can be auto suggested using TRIE data structure.

Runtime in asymptotic notation:

Runtime for searching using Trie data structure is O(n). Not sure if we have more efficient way.

Part 2: Retrieving restaurant data

Data structure: **Linked List and Hash Map**

- Used Linked List stored in Hash Map, which retrieves the data efficiently in the fastest way possible, making them ideally suited for this scenario.
- Using Linked list with Hash Map makes searching and retrieving data faster.

Runtime in asymptotic notation:

Runtime for retrieving O(n). we can have more efficient O(1), where we have to iterate one item, which is 1 -> 0(1)

Other innovative ways to utilize data structure:

Various other Tree data structure(B-tree) could be used. However, I think Trie data structure is the efficient data structure for this scenario.

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