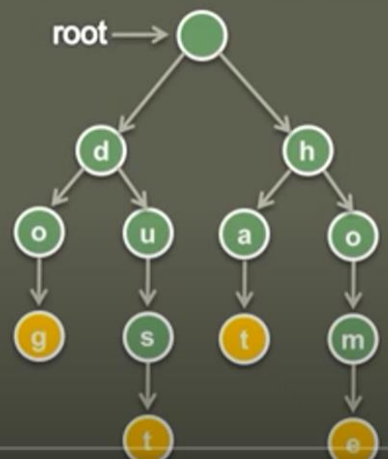
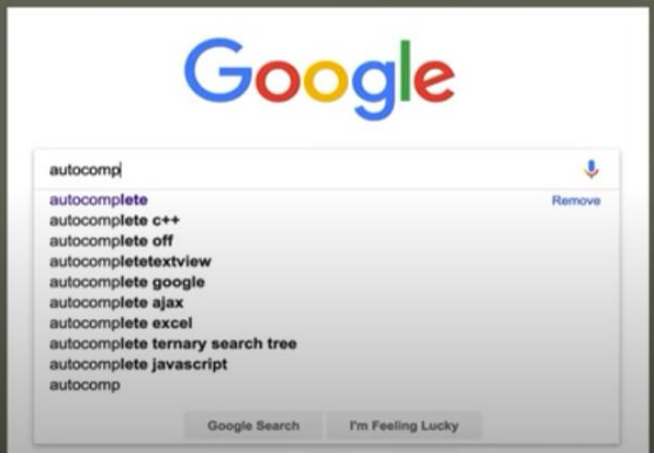
What is a Trie?

- Trie basically comes from the word Re*trie*val.
- The main purpose of this data structure is to retrieve stored information very fast.
- A Trie with 4 words -
  1. dog
  2. dust
  3. hat
  4. home



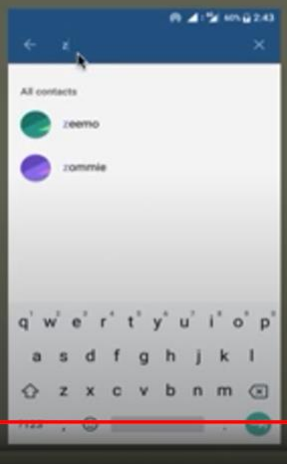
Applications - Auto-Complete words

- Autocomplete feature is implemented by Tries.
- Many websites have used autocomplete feature, which suggest user rest of the word, while user is typing.



Applications - Search Contacts in phone

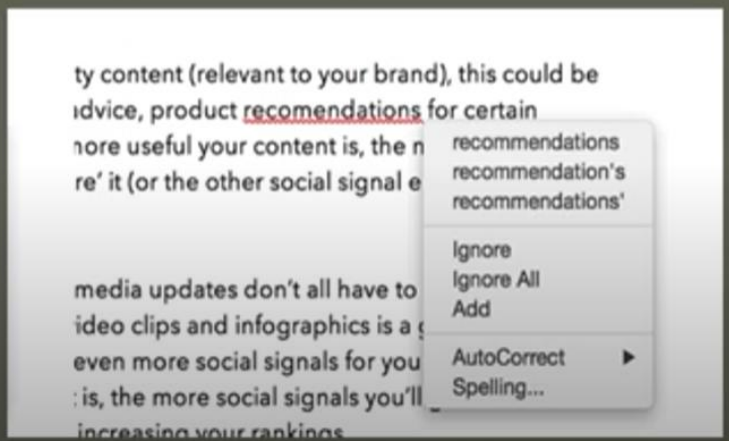
- Searching a person contact number in contact list is efficiently implemented by Trie. As soon as user enters letters the application auto suggest the name of the person.



2:59 / 3:59

Applications - Spell Checking

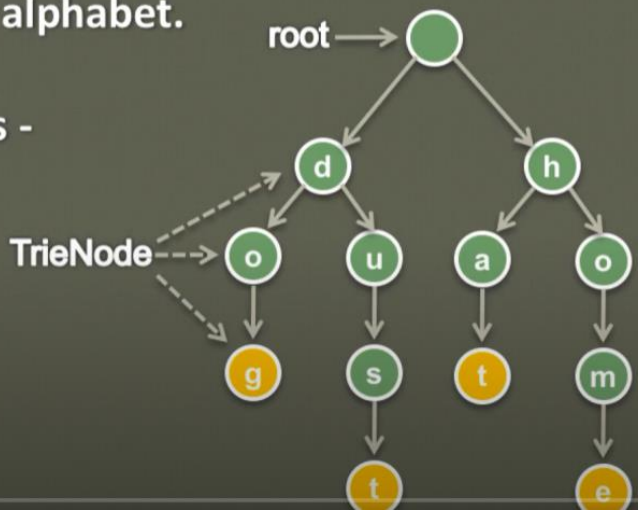
- Tries help to check and correct word spelling entered by user. In case user doesn't know exact spelling it auto suggest the correct spelling.



What is a TrieNode?

- A TrieNode in a Trie represents a single alphabet of the word.
- In below example, in order to insert word "dog" 3 TrieNode are used, one for each alphabet.

- A Trie with 4 words -
  1. dog
  2. dust
  3. hat
  4. home



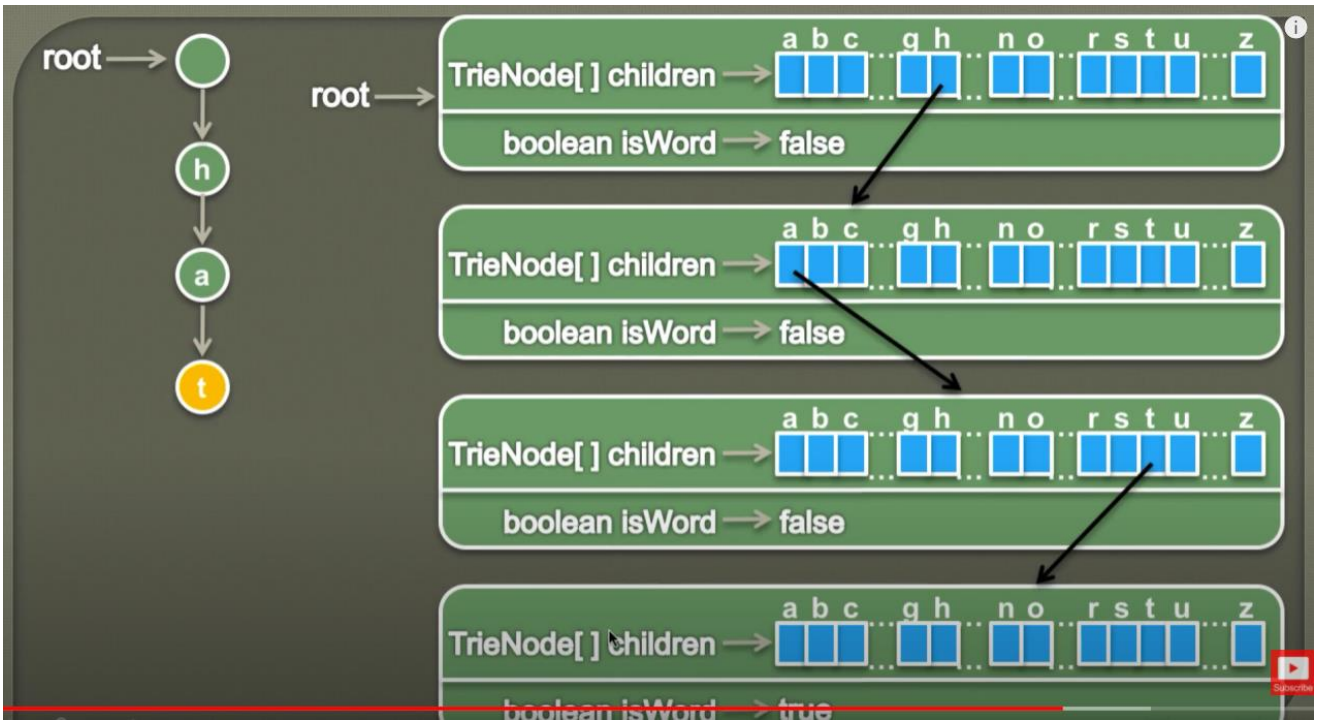
Representation of a TrieNode in Trie

A TrieNode class in Trie consists of two data members.

1. TrieNode[ ] children - An array which refers to other TrieNodes in Trie, also called as child nodes of a TrieNode. The size of array is usually taken as 26 (if we are storing English words)
2. boolean isWord - A boolean value to indicate the end of word. This value is set as true when a word is inserted completely.

TrieNode

TrieNode[ ] children
boolean isWord



Implementation of the Trie class

- A Trie will be implemented using TrieNode class.
- A root TrieNode is at top with empty value having 26 links (one per alphabet).
- The links are either null or points to another TrieNode.

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