

A data structure between trie and list for auto completion

Abstract

Auto completion is one of the useful features available as a web service. This technique can be implemented in many applications, ranging from a small scale of service like auto complete for items sold in a shop to a large scale of service like Google suggestions which involve suggesting a huge dataset. One of the challenges in implementing auto complete service with a large dataset and a limited computer power is on how to achieve a fast lookup without consuming a lot of memory. This paper presents a data structure that can implement auto complete service that contains up to millions of concepts in a standard computer. The proposed data structure increases the search complexity in return to saving a large amount of memory. A service similar to DBpedia lookup service which contains 9 million words as completion candidates is developed to test the performance of this data structure. The testing shows that such data structure requires less memory than ternary search tree and more importantly a lookup can be performed within milliseconds.