Week 10 - String Search

AD 325 - 2022

Contents

Reading & Videos

- https://www.coursera.org/learn/algorithms-part2/home/week/4

Reference

- https://algs4.cs.princeton.edu/52trie/
- https://algs4.cs.princeton.edu/53substring/
- https://www.geeksforgeeks.org/advantages-trie-data-structure/

Learning Outcomes

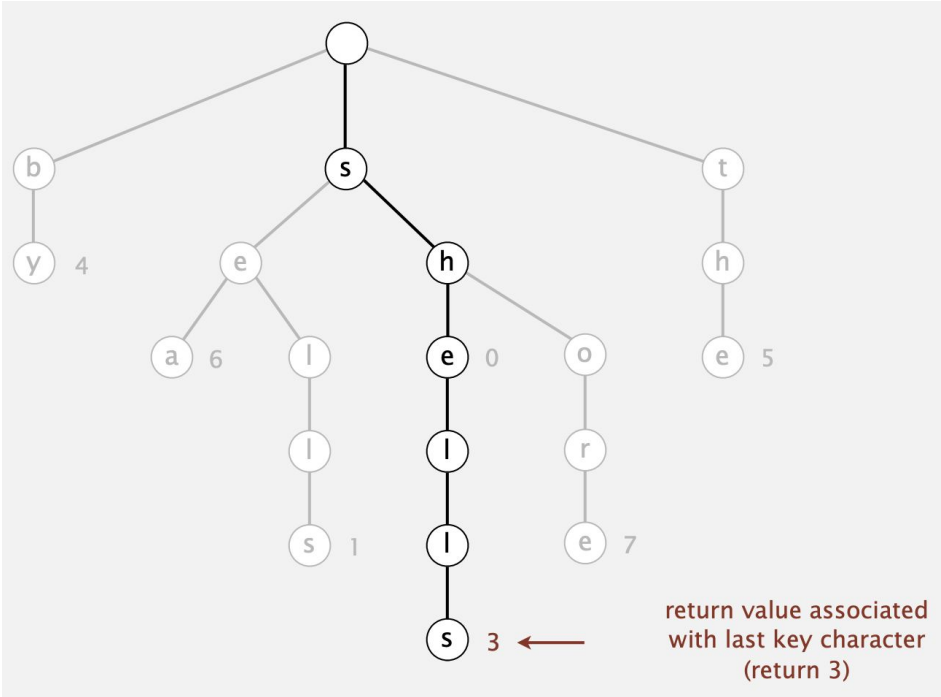
- Trie data structure
- Character-based operations
- Substring search

Trie Data Structure

The Trie (pronounced ‘try’) is a data structure optimized for string keys. As fast as hashing but more flexible than Binary Search Trees and able to support sorting operations.

R-Way Trie

- Stores characters in nodes
- Each node has R children, one for each possible character (e.g. 256 characters for Latin alphabet)
- Children are represented as an array of nodes accessed by char value
- Nodes can link to a ‘next’ nodes to form words



Ternary Search Tries

- Stores characters & values in nodes
- Each node has at most 3 children - smaller (left), equal (middle), larger (right)