

CE205 Data Structures Week-12

String Search Algorithms, Tries, Data Structures for Disjoint Sets

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1 CE205 Data Structures

2 Week-12

2.0.1 String Search Algorithms, Tries, Data Structures for Disjoint Sets

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2.0.2 Outline

- Strings
 - Reverse Factor Algorithm (String Search)
 - * Knuth-Morris-Pratt Algorithm
 - * Horspool Algorithm
 - * Boyer-Moore Algorithm
 - * Brute-Force / Linear Text Search
 - * DFA Text Search
 - Tries
 - * Patricia Tree (Radix Tree)
 - Data Structures for Disjoint Sets

¹ce205-week-12-string-algorithms.md_doc.pdf

²ce205-week-12-string-algorithms.md_slide.pdf

³ce205-week-12-string-algorithms.md_slide.pptx

- * Disjoint-set operations
 - * Linked-list representation of disjoint sets
 - * Disjoint-set forests
 - * Analysis of union by rank with path compression
-

2.0.3 Strings - Reverse Factor Algorithm (String Search)

2.0.3.1 Knuth-Morris-Pratt Algorithm

- https://en.wikipedia.org/wiki/Knuth%E2%80%93Pratt_algorithm
 - <https://www.geeksforgeeks.org/kmp-algorithm-for-pattern-searching/>
 - <https://www.javatpoint.com/daa-knuth-morris-pratt-algorithm>
 - <https://www.educative.io/answers/what-is-the-knuth-morris-pratt-algorithm>
 - http://www.btechsmartclass.com/data_structures/knuth-morris-pratt-algorithm.html
 - <https://www.igm.univ-mlv.fr/~lecroq/string/node32.html#SECTION00320>
 - <https://algs4.cs.princeton.edu/lectures/keynote/53SubstringSearch.pdf>
-

2.0.4 Strings - Reverse Factor Algorithm (String Search)

2.0.4.1 Horspool Algorithm

- https://en.wikipedia.org/wiki/Boyer%E2%80%93Moore%E2%80%93Horspool_algorithm
 - <https://www.inf.hs-flensburg.de/lang/algorithmen/pattern/horsen.htm>
 - <https://www.igm.univ-mlv.fr/~lecroq/string/node18.html>
-

2.0.5 Strings - Reverse Factor Algorithm (String Search)

2.0.5.1 Boyer-Moore Algorithm

- https://en.wikipedia.org/wiki/Boyer%E2%80%93Moore_string-search_algorithm
 - <https://www.geeksforgeeks.org/boyer-moore-algorithm-for-pattern-searching/?ref=gcse>
-

2.0.6 Strings - Reverse Factor Algorithm (String Search)

2.0.6.1 Brute-Force / Linear Text Search

- <https://algs4.cs.princeton.edu/lectures/keynote/53SubstringSearch.pdf>
-

2.0.7 Strings - Reverse Factor Algorithm (String Search)

2.0.7.1 DFA (deterministic finite automaton) Text Search

- <https://www.geeksforgeeks.org/finite-automata-algorithm-for-pattern-searching/>
-

2.0.8 Tries

2.0.8.1 Patricia Tree (Radix Tree)

- https://en.wikipedia.org/wiki/Radix_tree
 - http://www.btechsmartclass.com/data_structures/tries.html
 - <https://www.geeksforgeeks.org/implementing-patricia-trie-in-java/>
-

2.0.9 Data Structures for Disjoint Sets

- <https://ucoruh.github.io/ce100-algorithms-and-programming-II/week-10/ce100-week-10-graphs/?h=disjoint#disjoint-set-operations>
- Disjoint-set operations
- Linked-list representation of disjoint sets
- Disjoint-set forests
- Analysis of union by rank with path compression
- <https://www.geeksforgeeks.org/disjoint-set-data-structures/>
- <https://www.javatpoint.com/disjoint-set-data-structure>

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