

CE205 Data Structures Week-2

Linked Lists and Related Algorithms, Arrays and Matrices

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1 CE205 Data Structures

2 Week-2

2.0.1 Linked Lists and Related Algorithms Arrays and Matrices

Download DOC¹, SLIDE², PPTX³

2.0.2 Outline-1

- Resources
- ASN.1 C Workshop
- Single Linked List
- Circular Linked List
- Double Linked List
- XOR Linked List

¹[ce205-week-2-linkedlist.md_doc.pdf](#)

²[ce205-week-2-linkedlist.md_slide.pdf](#)

³[ce205-week-2-linkedlist.md_slide.pptx](#)

- Skip List
 - Strand Sort
-

2.0.3 Outline-2

- Arrays
 - Array Rotations
 - Arrangement Rearrangement
 - Array Searching and Sorting
 - Matrix
 - Sparse Matrix
-

2.0.4 Resources

- WilliamFiset
 - WilliamFiset - YouTube⁴
 - GitHub - williamfiset/Algorithms: A collection of algorithms and data structures⁵
 - Btech Smart Class
 - Data Structures Tutorials - Introduction to Algorithms⁶
 - Programiz
 - Data Structure and Types⁷
 - GeeksforGeeks
 - Array Data Structure - GeeksforGeeks⁸
 - Visual Algo
 - <https://visualgo.net/en>
-

2.0.5 Workshop

- <https://github.com/ucoruh/asn1c-wsl-sample>
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2.0.6 Single Linked List

- Btech Smart Class
 - Data Structures Tutorials - Single Linked List with an example⁹
 - Visual Algo
 - <https://visualgo.net/en/list>
-

2.0.7 Circular Linked List

- Btech Smart Class
 - Data Structures Tutorials - Circular Linked List with an example | Implementation¹⁰
- Geeks for Geeks
 - Circular Linked List | Set 1 (Introduction and Applications) - GeeksforGeeks¹¹
- Geeks for Geeks

⁴<https://www.youtube.com/c/WilliamFiset-videos/playlists>

⁵<https://github.com/williamfiset/Algorithms>

⁶http://www.btechsmartclass.com/data_structures/introduction-to-algorithms.html

⁷<https://www.programiz.com/dsa/data-structure-types>

⁸<https://www.geeksforgeeks.org/array-data-structure/?ref=ghm>

⁹http://www.btechsmartclass.com/data_structures/single-linked-list.html

¹⁰http://www.btechsmartclass.com/data_structures/circular-linked-list.html

¹¹<https://www.geeksforgeeks.org/circular-linked-list/>

- Circular Linked List | Set 2 (Traversal) - GeeksforGeeks¹²
-

2.0.8 Double Linked List

- Btech Smart Class
 - Data Structures Tutorials - Double Linked List with an example program¹³
 - Geeks for Geeks
 - Doubly Linked List | Set 1 (Introduction and Insertion) - GeeksforGeeks¹⁴
 - Visual Algo
 - Linked List (Single, Doubly), Stack, Queue, Deque - VisuAlgo¹⁵
-

2.0.9 XOR Linked List

- Wikipedia
 - XOR linked list - Wikipedia¹⁶
 - Geeks for Geeks
 - XOR Linked List - A Memory Efficient Doubly Linked List | Set 1 - GeeksforGeeks¹⁷
 - Geeks for Geeks
 - XOR Linked List – A Memory Efficient Doubly Linked List | Set 2 - GeeksforGeeks¹⁸
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2.0.10 Skip List

- Wikipedia
 - Skip list - Wikipedia¹⁹
 - Geeks for Geeks
 - Skip List | Set 1 (Introduction) - GeeksforGeeks²⁰
 - Skip List | Set 2 (Insertion) - GeeksforGeeks²¹
 - Skip List | Set 3 (Searching and Deletion) - GeeksforGeeks²²
-

2.0.11 Strand Sort

- Geeks for Geeks
 - Strand Sort - GeeksforGeeks²³
-

2.0.12 Arrays

- Geeks for Geeks
 - Array Data Structure - GeeksforGeeks²⁴
 - Data structures Tutorials - Arrays²⁵

¹²<https://www.geeksforgeeks.org/circular-linked-list-set-2-traversal/>

¹³http://www.btechsmartclass.com/data_structures/double-linked-list.html

¹⁴<https://www.geeksforgeeks.org/doubly-linked-list/>

¹⁵<https://visualgo.net/en/list>

¹⁶https://en.wikipedia.org/wiki/XOR_linked_list

¹⁷<https://www.geeksforgeeks.org/xor-linked-list-a-memory-efficient-doubly-linked-list-set-1/>

¹⁸<https://www.geeksforgeeks.org/xor-linked-list-a-memory-efficient-doubly-linked-list-set-2/>

¹⁹https://en.wikipedia.org/wiki/Skip_list

²⁰<https://www.geeksforgeeks.org/skip-list/>

²¹<https://www.geeksforgeeks.org/skip-list-set-2-insertion/>

²²<https://www.geeksforgeeks.org/skip-list-set-3-searching-deletion/>

²³<https://www.geeksforgeeks.org/strand-sort/>

²⁴<https://www.geeksforgeeks.org/array-data-structure/>

²⁵http://www.btechsmartclass.com/data_structures/arrays.html

- Circular array - GeeksforGeeks²⁶
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2.0.12.1 Array Rotations

- Geeks for Geeks
 - Program for array rotation - GeeksforGeeks²⁷
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2.0.12.2 Arrangement Rearrangement

- Geeks for Geeks
 - Array Rearrangement - GeeksforGeeks²⁸
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2.0.12.3 Array Searching and Sorting

- Geeks for Geeks
 - Difference between Searching and Sorting Algorithms - GeeksforGeeks²⁹
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2.0.13 Matrix

- Geeks for Geeks
 - Matrix Archives - GeeksforGeeks³⁰
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2.0.13.1 Sparse Matrix

- Geeks for Geeks
 - Data Structures Tutorials - Sparse Matrix with an example³¹
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End – Of – Week – 2

²⁶<https://www.geeksforgeeks.org/circular-array/>

²⁷<https://www.geeksforgeeks.org/array-rotation/>

²⁸<https://www.geeksforgeeks.org/array-data-structure/array-rearrangement/>

²⁹<https://www.geeksforgeeks.org/difference-between-searching-and-sorting-algorithms/>

³⁰<https://www.geeksforgeeks.org/matrix/?ref=ghm>

³¹http://www.btechsmartclass.com/data_structures/sparse-matrix.html