

# CE205 Data Structures

## Week-7

Linear, Binary and Fibonacci Search, Hashing and Hash Tables with Perfect Hashing

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## Outline-1

- Linear Search
- Binary Search
- Binary Search vs Linear Search
- Interpolation Search
- Interpolation search vs Binary search
- Fibonacci Search

## Outline-2

- Hashing and Hash Tables
- Direct-Address Tables
  - Hash Tables
  - Hash Functions
  - Open Addressing
  - Perfect Hashing

## Linear Search

- [http://www.btechsmartclass.com/data\\_structures/linear-search.html](http://www.btechsmartclass.com/data_structures/linear-search.html)
- <https://www.geeksforgeeks.org/linear-search/>

## Binary Search

- [http://www.btechsmartclass.com/data\\_structures/binary-search.html](http://www.btechsmartclass.com/data_structures/binary-search.html)
- <https://www.geeksforgeeks.org/binary-search/>
- <https://visualgo.net/en/bst>

## Binary Search vs Linear Search

- <https://www.geeksforgeeks.org/linear-search-vs-binary-search/?ref=rp>

## Interpolation Search

- <https://www.geeksforgeeks.org/interpolation-search/>

## Interpolation search vs Binary search

- <https://www.geeksforgeeks.org/g-fact-84/?ref=rp>



## Fibonacci Search

- <https://www.geeksforgeeks.org/fibonacci-search/>

## Hashing and Hash Tables

- <https://www.hackerearth.com/practice/data-structures/hash-tables/basics-of-hash-tables/tutorial/>
- [http://www.btechsmartclass.com/data\\_structures/hashing.html](http://www.btechsmartclass.com/data_structures/hashing.html)

## Direct-Address Tables

- <https://www.geeksforgeeks.org/direct-address-table/>

## Hash Tables

- [https://www.tutorialspoint.com/data\\_structures\\_algorithms/hash\\_data\\_structure.htm](https://www.tutorialspoint.com/data_structures_algorithms/hash_data_structure.htm)

## Hash Functions

- <https://www.geeksforgeeks.org/what-are-hash-functions-and-how-to-choose-a-good-hash-function/>
- [https://www.tutorialspoint.com/cryptography/cryptography\\_hash\\_functions.htm](https://www.tutorialspoint.com/cryptography/cryptography_hash_functions.htm)
- <https://www.cs.hmc.edu/~geoff/classes/hmc.cs070.200101/homework10/hashfuncs.html>

## Open Adressing

- <https://www.geeksforgeeks.org/hashing-set-3-open-addressing/>

## Perfect Hashing

- [https://en.wikipedia.org/wiki/Perfect\\_hash\\_function#:~:text=In computer science%2C a perfect,constant worst-case access time.](https://en.wikipedia.org/wiki/Perfect_hash_function#:~:text=In%20computer%20science,a%20perfect,constant%20worst-case%20access%20time.)

*End – Of – Week – 6*