

# Data Structures

# Hashing – Introduction

Team Emertxe



# Hashing – Introduction(Part1)





# Data Structure –Hashing

# Introduction



**What ?**



## **What ?**

Hashing is a technique used for storing and retrieving information as quickly as possible.



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Hashing is a technique used for storing and retrieving information as quickly as possible.

Optimal Search



## Why ?

- .Searching Technique
- .Linear Search :  $O(n)$
- .Binary Search :  $O(\log n)$
- . Unsorted List :  $O(n \log n)$
- .Tree
- .Binary Search Tree :  $O(\log n)$



### Why ?

- .Searching Technique

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- .Binary Search Tree :  $O(\log n)$

- .Insert Element

- .Search Element =  $O(1)$

- .Delete Element



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- .Searching Technique

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- .Search Element =  $O(1)$

- .Delete Element

Worst case TC =  $O(n)$





## Example

.Universities

.Library

- . In both these examples the students and books were hashed to a unique number.
- .In hashing, large keys are converted into small keys by using hash functions.
- .The values are then stored in a data structure called hash table.



## **Components**

- .Hash Table
- .Hash Function
- .Collision
- .Collision Resolution Technique

# Introduction



## Where ?

Hashing provides constant time

- . Object representation
- . Linking File name and path together
- . Symbolic Tables
- . Process Tables
- . Compiler Operation

# Hashing - Introduction(Part 2)

