

13 Lecture - CS301

Important Subjective

- 1. What is the cost of search and why is it important in computer science?**
Answer: The cost of search refers to the amount of time, resources, and computational power required to search for a specific item in a data structure. It is important in computer science because efficient search algorithms can significantly reduce search costs and improve overall system performance.
- 2. What are the common measures of search cost?**
Answer: Common measures of search cost include time complexity, space complexity, and worst-case analysis.
- 3. What is the time complexity of binary search?**
Answer: The time complexity of binary search is $O(\log n)$.
- 4. What is the disadvantage of linear search?**
Answer: The disadvantage of linear search is that it has a time complexity of $O(n)$, which makes it inefficient for large datasets.
- 5. What is the advantage of hash tables for search operations?**
Answer: Hash tables provide constant time search operations with a good hash function.
- 6. What is the time complexity of searching a hash table with a good hash function?**
Answer: The time complexity of searching a hash table with a good hash function is $O(1)$.
- 7. What is the disadvantage of binary search?**
Answer: The disadvantage of binary search is that it can only be used with sorted arrays.
- 8. What is the advantage of binary search over linear search?**
Answer: The advantage of binary search over linear search is that it has a time complexity of $O(\log n)$, which makes it more efficient for large datasets.
- 9. What is worst-case analysis for search algorithms?**
Answer: Worst-case analysis is a measure of the maximum amount of time or space required to perform a specific operation in the worst-case scenario.
- 10. How can search costs be reduced in data structures?**
Answer: Search costs can be reduced in data structures by using efficient search algorithms, such as binary search or hash tables, and by implementing balanced trees or other optimized data structures.