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.