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.