

31 Lecture - CS301

Important Subjective

- 1. What is the purpose of the BuildHeap algorithm?**
Answer: The purpose of the BuildHeap algorithm is to convert an array of elements into a heap data structure, which satisfies the heap property.
- 2. What is the time complexity of the BuildHeap algorithm?**
Answer: The time complexity of the BuildHeap algorithm is $O(n)$.
- 3. How does the BuildHeap algorithm work?**
Answer: The BuildHeap algorithm works by repeatedly swapping elements in the array until the entire array satisfies the heap property.
- 4. What is the heap property?**
Answer: The heap property is a property of a binary tree where each node is greater than or equal to its children nodes.
- 5. How many swaps are required to convert an array of n elements into a heap using the BuildHeap algorithm?**
Answer: At most n swaps are required to convert an array of n elements into a heap using the BuildHeap algorithm.
- 6. Is the BuildHeap algorithm stable?**
Answer: No, the BuildHeap algorithm is not stable.
- 7. What is the space complexity of the BuildHeap algorithm?**
Answer: The space complexity of the BuildHeap algorithm is $O(1)$, as the algorithm does not require any extra space beyond the input array.
- 8. What is the difference between a max heap and a min heap?**
Answer: In a max heap, the value of each node is greater than or equal to the value of its children, whereas in a min heap, the value of each node is less than or equal to the value of its children.
- 9. What is the time complexity of HeapSort algorithm?**
Answer: The time complexity of HeapSort algorithm is $O(n \log n)$.
- 10. Can the BuildHeap algorithm be used to create a priority queue?**
Answer: Yes, the BuildHeap algorithm can be used to create a priority queue, as a heap data structure can be used to implement a priority queue.