

# 22 Lecture - CS301

## Important Subjective

- 1. What is a rotation in a binary search tree?**  
Answer: A rotation is a manipulation performed on a binary search tree to maintain its balance.
- 2. What are the two types of rotations in a binary search tree?**  
Answer: The two types of rotations are single rotations and double rotations.
- 3. How do rotations help in balancing a binary search tree?**  
Answer: Rotations help in redistributing the nodes of a binary search tree to maintain balance, which in turn helps in efficient search operations.
- 4. When is a single left rotation used in a binary search tree?**  
Answer: A single left rotation is used when the imbalance occurs in the immediate left child of a node.
- 5. When is a single right rotation used in a binary search tree?**  
Answer: A single right rotation is used when the imbalance occurs in the immediate right child of a node.
- 6. What is the difference between a single rotation and a double rotation in a binary search tree?**  
Answer: A single rotation involves rotating only one node, while a double rotation involves rotating two nodes.
- 7. What is the maximum number of rotations required to balance a node in a binary search tree?**  
Answer: The maximum number of rotations required to balance a node in a binary search tree is two.
- 8. What is the left-right case in a binary search tree rotation?**  
Answer: The left-right case occurs when the left child of a node has a right child, and the subtree is imbalanced.
- 9. What is the right-left case in a binary search tree rotation?**  
Answer: The right-left case occurs when the right child of a node has a left child, and the subtree is imbalanced.
- 10. What is the purpose of using rotations in a binary search tree?**  
Answer: The purpose of using rotations in a binary search tree is to maintain its balance and ensure efficient search operations.