Naive Bayes  
  
What is the basic idea behind the Naive Bayes classifier?  
What are the key components of the Naive Bayes algorithm?  
Can you explain the Bayes' theorem and its role in Naive Bayes?  
How do you calculate the probability of a class in a Naive Bayes classifier?  
How does Naive Bayes handle continuous and discrete features differently?  
Can you explain the concept of feature independence in Naive Bayes? Why is it a simplifying assumption?  
What are the advantages and disadvantages of using Naive Bayes for classification tasks?  
How do you handle missing data in Naive Bayes?  
How can you evaluate the performance of a Naive Bayes classifier? What are common evaluation metrics?  
When might the Naive Bayes classifier perform poorly, and why?  
Can you provide an example of a real-world application where Naive Bayes is commonly used?  
  
Decision Tree  
What is a decision tree, and how does it work?  
 How is the splitting criteria chosen in a decision tree?  
What is information gain, and how is it used in decision trees?  
What is the Gini index, and how is it used in decision trees?  
How do you handle missing data in a decision tree?  
How do you handle categorical data in a decision tree?  
What is pruning in decision trees, and why is it important?  
What is ensemble learning, and how are decision trees used in ensemble methods like  
Random Forest?  
What are some common challenges faced when using decision trees, and how do you  
overcome them?  
Can decision trees be used for both classification and regression problems? How?  
 How do you evaluate the performance of a decision tree model?