**[Que-50.33] - What are the key hyperparameters of a random forest and how do they affect the model?**

### **Key Hyperparameters of a Random Forest**

1. **Number of Trees (n\_estimators)**: The number of trees in the forest. More trees generally improve performance but increase computation time.
2. **Maximum Depth (max\_depth)**: The maximum depth of each tree. Limiting the depth helps prevent overfitting.
3. **Minimum Samples Split (min\_samples\_split)**: The minimum number of samples required to split an internal node. Higher values prevent overfitting.
4. **Minimum Samples Leaf (min\_samples\_leaf)**: The minimum number of samples required to be at a leaf node. It helps to smooth the model.
5. **Maximum Features (max\_features)**: The number of features to consider when looking for the best split. Reducing this number can increase model diversity.
6. **Bootstrap**: Whether bootstrap samples are used when building trees. If False, the whole dataset is used to build each tree.