**[Que-50.43] - What are the key hyperparameters in XGBoost and how do they affect model performance?**

### **Key Hyperparameters in XGBoost**

1. **Learning Rate (eta)**: Controls the contribution of each tree. Lower values require more trees but can lead to better generalization.
2. **Number of Trees (n\_estimators)**: The number of boosting rounds.
3. **Maximum Depth (max\_depth)**: The maximum depth of each tree. Deeper trees can model more complex relationships but may overfit.
4. **Minimum Child Weight (min\_child\_weight)**: Minimum sum of instance weight needed in a child. Helps to control overfitting.
5. **Subsample**: Fraction of samples to be used for training each tree. Reduces overfitting.
6. **Colsample\_bytree**: Fraction of features to be used for training each tree. Helps in model diversity.