Gradient Boosting(XGBoost)

- XGBoost stands for eXtreme Gradient Boosting.
- Extreme Gradient Boosting is an advanced implementation of the Gradient Boosting. This algorithm has high predictive power and is ten times faster than any other gradient boosting techniques.
- XGBoost is a software library that you can download and install on your machine, then access from a variety of interfaces.
- The library is laser-focused on computational speed and model performance, as such there are few frills. Nevertheless, it does offer a number of advanced features.
- The two reasons to use XGBoost are also the two goals of the project: Execution Speed, Model Performance

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- **Advantages of XGBoost**
- **Implements regularisation helping reduce overfit (GB does not have).**
- **Implements parallel processing being much faster than GB.**
- **Allows users to define custom optimisation objectives and evaluation criteria adding a whole new dimension to the model.**
- **XGBoost has an in-built routine to handle missing values.**
- **XGBoost makes splits up to the max_depth specified and then starts pruning the tree backwards and removes splits beyond which there is no positive gain;**
- **XGBoost allows a user to run cross-validation at each iteration of the boosting process and thus it is easy to get the exact optimum number of boosting iterations in a single run**