SMOTE

SMOTE Synthetic Minority Oversampling Technique.

SMOTE selects the nearest examples in the feature space, then draws a line between them, and at a point along the line, it creates a new sample.

SMOTE picks an instance randomly from the minority class. Then it finds its k nearest neighbors from the minority class itself. Then one of the neighbors gets chosen randomly and draws the line between these two instances. Then new synthetic examples are generated using a convex combination of these two instances.

ADASYN

ADASYN stands for Adaptive Synthetic Sampling Technique

This approach works according to the density of the minority class instances. Generating new samples is inversely proportional to the density of the minority class samples.

It generates more samples in the feature space region where minority class examples density is low or none and fewer samples in the high-density space.

Why we use random Forest

Random Forest is a sophisticated and adaptable supervised machine learning technique that creates and combines a large number of decision trees to create a "forest".

Random forest adds additional randomness to the model, while growing the trees. Instead of searching for the most important feature while splitting a node, it searches for the best feature among a random subset of features. This results in a wide diversity that generally results in a better mode