

Accuracy Results Table:

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Attribute selection strategy	Average Accuracy Over 20 Runs	
	Information Gain	Gini Impurity
Always select the best attribute	0.937638%	0.934166%
Select one randomly from the top three attributes	0.807993%	0.812608%

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Calculation:

Information gain is calculated by comparing the entropy of the original set of data to the entropy of the two child sets. Gini impurity is calculated by subtracting the sum of the squared probabilities of each class from one.

Performance:

Both are metrics used in decision tree algorithms to measure informativeness, and the best one to use depends on the following factors

Target variable

Information gain is better when the target variable has many possible values, while Gini impurity is better when the target variable has only a few possible values

Class balance

Gini impurity is better when the classes are balanced, while information gain is better when the classes are imbalanced

Dataset size

Gini impurity can be more efficient to calculate than information gain, especially when dealing with large datasets