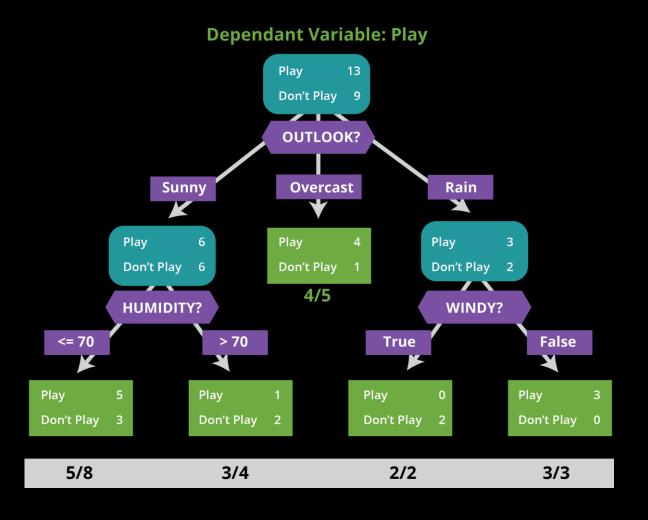# Decision Trees

Decision Trees

- Are a collection of 'If / Else' statements.

- Very human understandable.

- Very robust and can handle complex data.

Dependant Variable: Play

| | Play | 13 |
| | Don't Play | 9 |

OUTLOOK?

Sunny → Overcast → Rain

Sunny:
| Play | 6 |
| Don't Play | 6 |

HUMIDITY?

Overcast:
| Play | 4 |
| Don't Play | 1 |
4/5

Rain:
| Play | 3 |
| Don't Play | 2 |

WINDY?

<= 70 → > 70

True → False

| Play | 5 |
| Don't Play | 3 |

| Play | 1 |
| Don't Play | 2 |

| Play | 0 |
| Don't Play | 2 |

| Play | 3 |
| Don't Play | 0 |

5/8   3/4   2/2   3/3

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Decision Tree Strategies

- Pruning gets rid of redundant branches and improves training time and accuracy.

- Bagging reduces training time and boosts accuracy.

- Bagging also creates a better representation of the data and reduces overfitting.

Tree Pruning Example