

# OneR

A simple learning algorithm

# Pseudo-code for 1R

For each attribute,

    For each value of the attribute, make a rule as follows:

        count how often each class appears

        find the most frequent class

        make the rule assign that class to this attribute-value

    Calculate the error rate of the rules for the attribute

Choose the rules with the smallest error rate

Note treat missing as a separate attribute.

# Evaluating the weather attributes

Outlook	Temp	Humidity	Windy	Play
Sunny	Hot	High	False	No
Sunny	Hot	High	True	No
Overcast	Hot	High	False	Yes
Rainy	Mild	High	False	Yes
Rainy	Cool	Normal	False	Yes
Rainy	Cool	Normal	True	No
Overcast	Cool	Normal	True	Yes
Sunny	Mild	High	False	No
Sunny	Cool	Normal	False	Yes
Rainy	Mild	Normal	False	Yes
Sunny	Mild	High	True	No
Overcast	Mild	High	True	Yes
Overcast	Hot	Normal	False	Yes
Rainy	Mild	High	True	No

Attribute	Rules	Errors	Total errors
Outlook			
Temp			
Humidity			
Windy			

\* indicates a tie

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Rainy	Cool	Normal	True	No
Overcast	Cool	Normal	True	Yes
Sunny	Mild	High	False	No
Sunny	Cool	Normal	False	Yes
Rainy	Mild	Normal	False	Yes
Sunny	Mild	High	True	No
Overcast	Mild	High	True	Yes
Overcast	Hot	Normal	False	Yes
Rainy	Mild	High	True	No

Attribute	Rules	Errors	Total errors
Outlook	Sunny → No	1/5	3/14
	Overcast → Yes	0/4	
	Rainy → Yes	2/5	

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Overcast	Cool	Normal	True	Yes
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Sunny	Cool	Normal	False	Yes
Rainy	Mild	Normal	False	Yes
Sunny	Mild	High	True	No
Overcast	Mild	High	True	Yes
Overcast	Hot	Normal	False	Yes
Rainy	Mild	High	True	No

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	Overcast → Yes	0/4	
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For attribute Temp the Total Errors are:

A) 3/14

B) 1/14

C) 9/14

D) 6/14

Temp

Hot -> no 2/4

Cool-> yes 1/4

Mild -> no 3/6

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Sunny	Mild	High	True	No
Overcast	Mild	High	True	Yes
Overcast	Hot	Normal	False	Yes
Rainy	Mild	High	True	No

Attribute	Rules	Errors	Total errors
Outlook	Sunny → No	1/5	3/14
	Overcast → Yes	0/4	
	Rainy → Yes	2/5	
Temp	Hot → No*	2/4	6/14
	Mild → Yes*	3/6	
	Cool → Yes	1/4	
Humidity	High → No	3/8	4/14
	Normal → Yes	1/6	
Windy	False → Yes	2/8	4/14
	True → No	2/6	

\* indicates a tie