Definitions

INSTANCE: (like a row)	one record or observation of the problem you are solving
ATTRIBUTE: (like a column)	a property of an instance.
CLASS:	the outcome variable of an instance
CLASSIFICATION MODEL:	given a historical data-set mapping instances with a given attribute to a specific set of classes predict the class of uncategorised instances

1R Method

Pseudocode for the 1R Method

For each attribute,

For each value of that 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.

Choose the rules with the smallest error rate.

The Dataset

Table 1.2 Weather Data

Outlook	Temperature	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	normal	true	yes
Overcast	mild	high	true	yes
Overcast	hot	normal	false	yes
Rainy	mild	high	true	no

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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	normal	true	yes
Overcast	mild	high	true	yes
Overcast	hot	normal	false	yes
Rainy	mild	high	true	no

OUTLOOK

ATTRIBUTES	RESULTS	RULES	MISSES	
Sunny:	Yes: 2 No: 3	If sunny, do not play	2	
Overcast:	Yes: 4 No: 0	If overcast, play	0	
Rainy:	Yes: 3 No: 2	If rainy, play	2	**ERROR RATE**
SUM	**14**		**4**	**28.57%**

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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	normal	true	yes
Overcast	mild	high	true	yes
Overcast	hot	normal	false	yes
Rainy	mild	high	true	no

TEMPERATURE

ATTRIBUTES	RESULTS	RULES	MISSES	
Hot:	Yes: 2 No: 2	If hot, play or don't play	2	Random selection = don't play
Mild:	Yes: 4 No: 2	If mild, play	2	
Cool:	Yes: 3 No: 1	If cool, play	1	**ERROR RATE**
SUM	**14**		**5**	**35.71%**

Table 1.2 Weather Data

Outlook	Temperature	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	normal	true	yes
Overcast	mild	high	true	yes
Overcast	hot	normal	false	yes
Rainy	mild	high	true	no

HUMIDITY

ATTRIBUTES	RESULTS	RULES	MISSES	
High:	Yes: 3 No: 4		3	
Normal:	Yes: 6 No: 1		1	**ERROR RATE**
SUM	**14**		**4**	**28.57%**

Table 1.2 Weather Data

Outlook	Temperature	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	normal	true	yes
Overcast	mild	high	true	yes
Overcast	hot	normal	false	yes
Rainy	mild	high	true	no

WINDY

ATTRIBUTES	RESULTS	RULES	MISSES	
True:	Yes: 3 No: 3	If hot, play or don't play	3	Random selection = play
False:	Yes: 6 No: 2	If mild, play	2	**ERROR RATE**
SUM	**14**		**5**	**35.71%**

The Resulting Rules:

ATTRIBUTE RESULTS			
OUTLOOK	**TEMPERATURE**	**HUMIDITY**	**WINDY**
If outlook = sunny, don't play	If temperature = hot, don't play	If humidity = high, don't play	If windy = false, then play
If outlook = overcast, play	If temperature = mild, play	If humidity = normal, play	If windy = true, don't play
If outlook = rainy, play	If temperature = cool, play		

FINAL ALGORYTHM:

IF OUTLOOK = SUNNY, DON'T PLAY OTHERWISE, PLAY

N.B. Humidity had the same error rate. In the case of a tie, we pick one rule.