

PENUGASAN DATA MINING



**DISUSUN OLEH :
EKY MARCELLINO
NIM : A11.2019.11767
KELOMPOK : A11.4614**

UNIVERSITAS DIAN NUSWANTORO

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1. Hitung Entropy dan Gain serta tentukan pohon keputusan yang terbentuk dari contoh kasus keputusan bermain tenis dibawah ini

OUTLOOK	TEMPERATURE	HUMIDITY	WINDY	PLAY
Sunny	Hot	High	No	Don't Play
Sunny	Hot	High	Yes	Don't Play
Cloudy	Hot	High	No	Play
Rainy	Mild	High	No	Play
Rainy	Cool	Normal	No	Play
Rainy	Cool	Normal	Yes	Play
Cloudy	Cool	Normal	Yes	Play
Sunny	Mild	High	No	Don't Play
Sunny	Cool	Normal	No	Play
Rainy	Mild	Normal	No	Play
Sunny	Mild	Normal	Yes	Play
Cloudy	Mild	High	Yes	Play
Cloudy	Hot	Normal	No	Play
Rainy	Mild	High	Yes	Don't Play

Jawab:

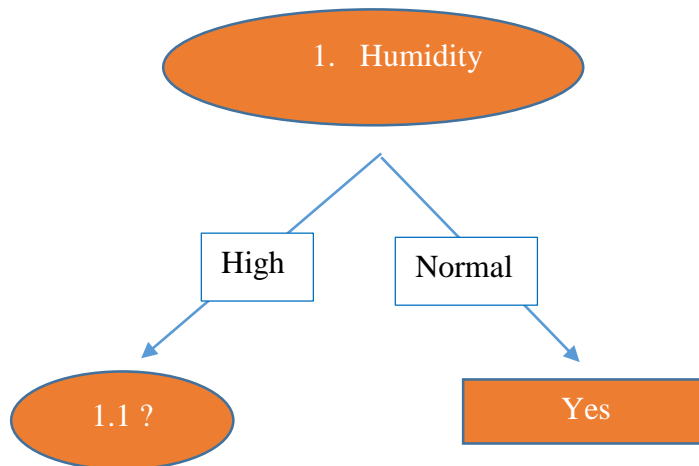
		Jml kasus(S)	Don't Play(S1)	Play(S2)	Entropy	Gain
Total		14	4	10	0.863121	
Outlook						0.258521
	Cloudy	4	0	4	0	
	Rainy	5	1	4	0.72193	
	Sunny	5	3	2	0.97095	
Temp						0.1838509
	Cool	4	0	4	0	
	Hot	4	2	2	1	
	Mild	6	2	4	0.9183	
Humidity						0.3705065
	High	7	4	3	0.98523	
	Normal	7	0	7	0	
Windy						
	No	8	4	6	0.98523	0.0059777
	Yes	6	4	2	0.9183	

- **Perhitungan Node 1**

$$\text{Entropy}(\text{Total}) = \left(-\frac{4}{14} * \log_2 \left(\frac{4}{14} \right) \right) + \left(-\frac{10}{14} * \log_2 \left(\frac{10}{14} \right) \right) = 0.863121$$

- **Perhitungan Node 1[2]**

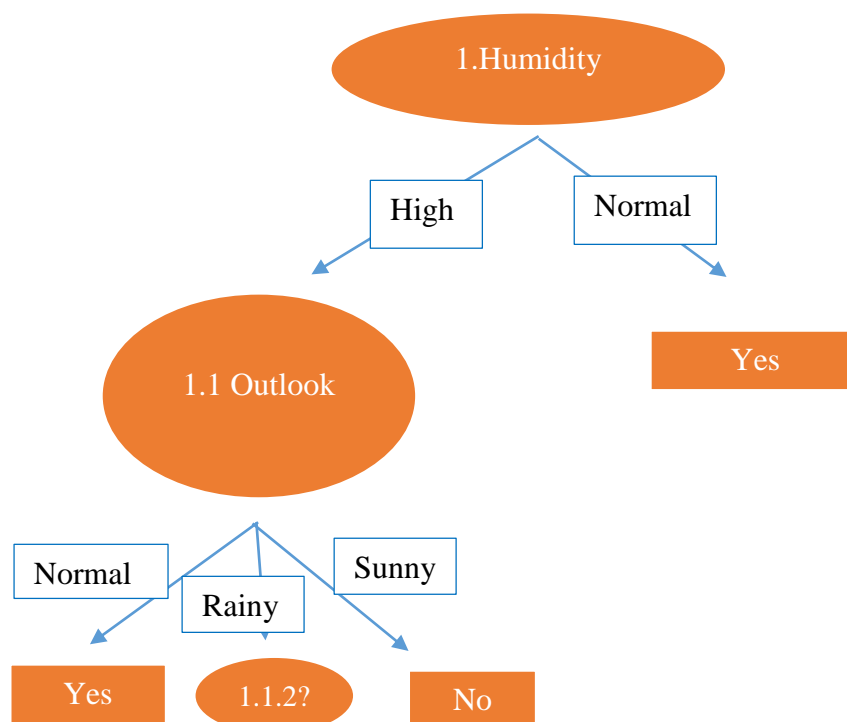
$$\text{Gain}(\text{Total, Outlook}) = 0.2585$$



- **Perhitungan Node 1.1**

		Jml kasus(S)	Don't Play(S1)	Play(S2)	Entropy	Gain
Humidity		7	4	3	0.98522814	
High						0.69951385
Outlook						
	Cloudy	2	0	2	0	
	Rainy	2	1	1	1	
	Sunny	3	3	0	0	
Temp						0.02024421
	Cool	0	0	0	0	
	Hot	3	2	1	0.91829	
	Mild	4	2	2	1	
Windy						0.02024421
	No	4	2	2	1	
	Yes	3	2	1	0.91829	

- **Perhitungan Node 1.1 [2]**



- Perhitungan Node 1.1.2

		Jml kasus(S)	Don't Play(S1)	Play(S2)	Entropy	Gain
Humidity		2	1	1	1	
High dan Outlook Rainy						
Temp						0
	Cool	0	0	0	0	
	Hot	0	0	0	0	
	Mild	2	1	1	1	
Windy						1
	No	1	0	1	0	
	Yes	1	1	0	0	

- Perhitungan Node 1.1.2 [2]

