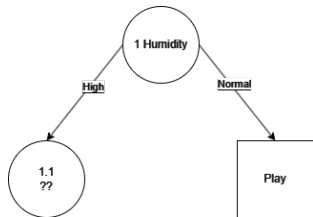
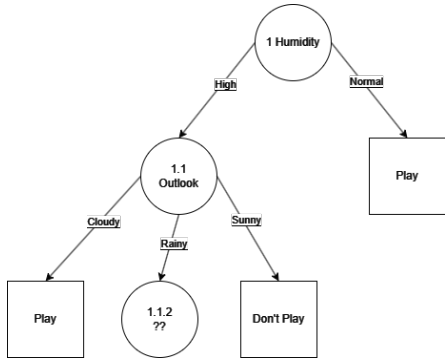


No	OUTLOOK	TEMPERATURE	HUMIDITY	WINDY	PLAY
1	Sunny	Hot	High	No	Don't Play
2	Sunny	Hot	High	Yes	Don't Play
3	Cloudy	Hot	High	No	Play
4	Rainy	Mild	High	No	Play
5	Rainy	Cool	Normal	No	Play
6	Rainy	Cool	Normal	Yes	Play
7	Cloudy	Cool	Normal	Yes	Play
8	Sunny	Mild	High	No	Don't Play
9	Sunny	Cool	Normal	No	Play
10	Rainy	Mild	Normal	No	Play
11	Sunny	Mild	Normal	Yes	Play
12	Cloudy	Mild	High	Yes	Play
13	Cloudy	Hot	Normal	No	Play
14	Rainy	Mild	High	Yes	Don't Play

		Jumlah Kasus(S)	Don't Play(S1)	Play(S2)	Entropy	Gain
Total		14	4	10	0,86312	
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						0,0059777
	No	8	2	6	0,81128	
	Yes	6	2	4	0,9183	



Node 1.1		Jumlah Kasus(S)	Don't Play(S1)	Play(S2)	Entropy	Gain
Humidity High		7	4	3	0,98523	
Outlook						0,69951385
	Cloudy	2	0	2	0	
	Rainy	2	1	1	1	
	Sunny	3	3	0	0	
Temp						0,2024421
	Cool	0	0	0	0	
	Hot	3	2	1	0,91829583	
	Mild	4	2	2	1	
Windy						0,02024421
	No	4	2	2	1	
	Yes	3	2	1	0,91829583	



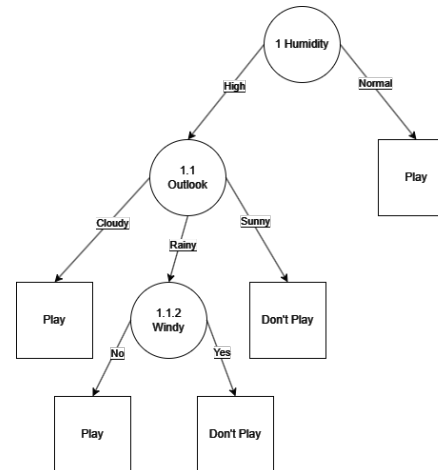
Node 1.1.2		Jumlah Kasus(S)	Don't Play(S1)	Play(S2)	Entropy	Gain
Humidity High						

$Entropy\ Total = (-\frac{4}{14}) * \log_2(\frac{4}{14}) + (-\frac{10}{14}) * \log_2(\frac{10}{14}) = 0,86312$
 $Gain(Total, Outlook) = 0,863120569 - ((\frac{4}{14} * 0,722) + (\frac{5}{14} * 0,97)) = 0,2585$
 $Entropy\ Cloudy = (-\frac{0}{4}) * \log_2(\frac{0}{4}) + (-\frac{4}{4}) * \log_2(\frac{4}{4}) = 0$
 $Entropy\ Rainy = (-\frac{1}{5}) * \log_2(\frac{1}{5}) + (-\frac{4}{5}) * \log_2(\frac{4}{5}) = 0,72193$
 $Entropy\ Sunny = (-\frac{3}{5}) * \log_2(\frac{3}{5}) + (-\frac{2}{5}) * \log_2(\frac{2}{5}) = 0,97095$
 $Gain(Total, Temp) = 0,863120569 - ((\frac{4}{14} * 0) + (\frac{4}{14} * 1) + (\frac{6}{14} * 0,183)) = 0,1838509$
 $Entropy\ Cool = (-\frac{0}{4}) * \log_2(\frac{0}{4}) + (-\frac{4}{4}) * \log_2(\frac{4}{4}) = 0$
 $Entropy\ Hot = (-\frac{2}{4}) * \log_2(\frac{2}{4}) + (-\frac{2}{4}) * \log_2(\frac{2}{4}) = 1$
 $Entropy\ Mild = (-\frac{2}{6}) * \log_2(\frac{2}{6}) + (-\frac{4}{6}) * \log_2(\frac{4}{6}) = 0,9183$
 $Gain(Total, Humidity) = 0,863120569 - ((\frac{7}{14} * 0,98523) + (\frac{7}{14} * 0)) = 0,3705065$
 $Entropy\ High = (-\frac{4}{7}) * \log_2(\frac{4}{7}) + (-\frac{3}{7}) * \log_2(\frac{3}{7}) = 0,98523$
 $Entropy\ Normal = (-\frac{0}{7}) * \log_2(\frac{0}{7}) + (-\frac{7}{7}) * \log_2(\frac{7}{7}) = 0$
 $Gain(Total, Windy) = 0,863120569 - ((\frac{8}{14} * 0,81128) + (\frac{6}{14} * 0,9183)) = 0,0059777$
 $Entropy\ No = (-\frac{2}{8}) * \log_2(\frac{2}{8}) + (-\frac{6}{8}) * \log_2(\frac{6}{8}) = 0,81128$
 $Entropy\ Yes = (-\frac{2}{6}) * \log_2(\frac{2}{6}) + (-\frac{4}{6}) * \log_2(\frac{4}{6}) = 0,9183$

$Entropy\ Humidity\ High = (-\frac{4}{7}) * \log_2(\frac{4}{7}) + (-\frac{3}{7}) * \log_2(\frac{3}{7}) = 0,98522814$
 $Gain(Humadity\ High, Outlook) = 0,98523 - ((\frac{2}{7} * 0) + (\frac{2}{7} * 1) + (\frac{3}{7} * 0)) = 0,69951385$
 $Entropy\ Cloudy = (-\frac{0}{2}) * \log_2(\frac{0}{2}) + (-\frac{2}{2}) * \log_2(\frac{2}{2}) = 0$
 $Entropy\ Rainy = (-\frac{1}{2}) * \log_2(\frac{1}{2}) + (-\frac{1}{2}) * \log_2(\frac{1}{2}) = 1$
 $Entropy\ Sunny = (-\frac{3}{3}) * \log_2(\frac{3}{3}) + (-\frac{0}{3}) * \log_2(\frac{0}{3}) = 0$
 $Gain(Humadity\ High, Temp) = 0,98523 - ((\frac{0}{7} * 0) + (\frac{3}{7} * 0,91829583) + (\frac{4}{7} * 1)) = 0,2024421$
 $Entropy\ Cool = (-\frac{0}{0}) * \log_2(\frac{0}{0}) + (-\frac{0}{0}) * \log_2(\frac{0}{0}) = 0$
 $Entropy\ Hot = (-\frac{2}{3}) * \log_2(\frac{2}{3}) + (-\frac{1}{3}) * \log_2(\frac{1}{3}) = 0,91829583$
 $Entropy\ Mild = (-\frac{2}{4}) * \log_2(\frac{2}{4}) + (-\frac{2}{4}) * \log_2(\frac{2}{4}) = 1$
 $Gain(Humadity\ High, Windy) = 0,98523 - ((\frac{4}{7} * 1) + (\frac{3}{7} * 0,91829583)) = 0,02024421$
 $Entropy\ No = (-\frac{2}{4}) * \log_2(\frac{2}{4}) + (-\frac{2}{4}) * \log_2(\frac{2}{4}) = 1$
 $Entropy\ Yes = (-\frac{2}{3}) * \log_2(\frac{2}{3}) + (-\frac{1}{3}) * \log_2(\frac{1}{3}) = 0,91829583$

Entropy Humidity High and Outlook Rainy = $(-\frac{1}{2}) * \log_2(\frac{1}{2}) + (-\frac{1}{2}) * \log_2(\frac{1}{2}) = 1$

Humidity High and Outlook Rainy		2	1	1	1	
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	



$$\text{Gain}(\text{Humidity High and Outlook Rainy, Temp}) = 1 - \left(\frac{0}{2} \cdot 0 + \frac{0}{72} \cdot 0 + \frac{2}{2} \cdot 1 \right) = 0$$

$$\text{Entropy Cool} = -\left(\frac{0}{0} \right) \cdot \log_2 \left(\frac{0}{0} \right) + -\left(\frac{0}{0} \right) \cdot \log_2 \left(\frac{0}{0} \right) = 0$$

$$\text{Entropy Hot} = -\left(\frac{0}{0} \right) \cdot \log_2 \left(\frac{0}{0} \right) + -\left(\frac{0}{0} \right) \cdot \log_2 \left(\frac{0}{0} \right) = 0$$

$$\text{Entropy Mild} = -\left(\frac{1}{2} \right) \cdot \log_2 \left(\frac{1}{2} \right) + -\left(\frac{1}{2} \right) \cdot \log_2 \left(\frac{1}{2} \right) = 1$$

$$\text{Gain}(\text{Humidity High and Outlook Rainy, Windy}) = 1 - \left(\frac{1}{2} \cdot 0 + \frac{1}{2} \cdot 1 \right) = 1$$

$$\text{Entropy No} = -\left(\frac{0}{1} \right) \cdot \log_2 \left(\frac{0}{1} \right) + -\left(\frac{1}{1} \right) \cdot \log_2 \left(\frac{1}{1} \right) = 0$$

$$\text{Entropy Yes} = -\left(\frac{1}{1} \right) \cdot \log_2 \left(\frac{1}{1} \right) + -\left(\frac{0}{1} \right) \cdot \log_2 \left(\frac{0}{1} \right) = 0$$