Day	Outlook	Temp.	Humidity	Wind	Decision	Day	Outlook	Temp.	Humidity	Wind	Decision
1	Sunny	Hot	High	Weak	No	8	Sunny	Mild	High	Weak	No
2	Sunny	Hot	High	Strong	No	9	Sunny	Cool	Normal	Weak	Yes
3	Overcast	Hot	High	Weak	Yes	10	Rain	Mild	Normal	Weak	Yes
4	Rain	Mild	High	Weak	Yes	11	Sunny	Mild	Normal	Strong	Yes
5	Rain	Cool	Normal	Weak	Yes	12	Overcast	Mild	High	Strong	Yes
6	Rain	Cool	Normal	Strong	No	13	Overcast	Hot	Normal	Weak	Yes
7	Overcast	Cool	Normal	Strong	Yes	14	Rain	Mild	High	Strong	No

Genel Entropi

5 Hayır , 9 Evet

$$H(X) = -\left(\frac{5}{14}\log_2\left(\frac{5}{14}\right) + \frac{9}{14}\log_2\left(\frac{9}{14}\right)\right)$$

$$H(X) = 0{,}9403$$

Outlook'un Entropisi

Sunny : 2 Evet , 3 Hayır

$$H(Sunny) = -\left(\frac{2}{5}\log_2\left(\frac{2}{5}\right) + \frac{3}{5}\log_2\left(\frac{3}{5}\right)\right)$$

$$H(Sunny) = 0{,}971$$

Overcast : 4 Evet , 0 Hayır

$$H(Overcast) = 0$$

Rain : 3 Evet , 2 Hayır

$$H(Rain) = -\left(\frac{2}{5}\log_2\left(\frac{2}{5}\right) + \frac{3}{5}\log_2\left(\frac{3}{5}\right)\right)$$

$$H(Rain) = 0{,}971$$

Outlook Ağırlık toplamı

$$H(Outlook) = \left(\frac{5}{14} \times 0{,}971\right) + \left(\frac{4}{14} \times 0\right) + \left(\frac{5}{14} \times 0{,}971\right)$$

$$H(Outlook) = 0{,}693$$

Outlook Kazancı

$$IG(Outlook) = 0{,}943 - 0{,}693$$

$$IG(Outlook) = 0{,}25$$

Temperature'un Entropisi

Hot : 2 Yes , 2 No

$$H(Hot) = 1$$

Mild : 4 Yes , 2 No

$$H(Mild) = -\left(\frac{2}{6}\log_2\left(\frac{2}{6}\right) + \frac{4}{6}\log_2\left(\frac{4}{6}\right)\right)$$

$$H(Mild) = 0{,}9183$$

Cold : 3 Yes , 1 No

$$H(Cold) = -\left(\frac{1}{4}\log_2\left(\frac{1}{4}\right) + \frac{3}{4}\log_2\left(\frac{3}{4}\right)\right)$$

$$H(Cold) = 0{,}8113$$

Temperature Ağırlık toplamı

$$H(Temperature) = \left(\frac{4}{14} \times 1\right) + \left(\frac{6}{14} \times 0{,}9183\right) + \left(\frac{4}{14} \times 0{,}8113\right)$$

$$H(Temperature) = 0{,}9110$$

Temperature Kazancı

$$IG(Temperature) = 0{,}943 - 0{,}9110$$

$$IG(Temperature) = 0{,}032$$

Humidity'in Entropisi

High : 3 Yes , 4 No

$$H(High) = -\left(\frac{3}{7}\log_2\left(\frac{3}{7}\right) + \frac{4}{7}\log_2\left(\frac{4}{7}\right)\right)$$

$$H(High) = 0{,}99852$$

Normal : 6 Yes , 1 No

$$H(Normal) = -\left(\frac{1}{7}\log_2\left(\frac{1}{7}\right) + \frac{6}{7}\log_2\left(\frac{6}{7}\right)\right)$$

$$H(Normal) = 0{,}5917$$

Humidity Ağırlık toplamı

$$H(Humidity) = \left(\frac{7}{14} \times 0{,}99852\right) + \left(\frac{7}{14} \times 0{,}5917\right)$$

$$H(Humidity) = 0{,}7951$$

Humidity Kazancı

$$IG(Humidity) = 0{,}943 - 0{,}7951$$

$$IG(Humidity) = 0{,}1479$$

Wind'in Entropisi

Strong : 3 Yes , 3 No

$$H(Strong) = 1$$

Weak : 6 Yes , 2 No

$$H(Weak) = -\left(\frac{2}{8}\log_2\left(\frac{2}{8}\right) + \frac{6}{8}\log_2\left(\frac{6}{8}\right)\right)$$

$$H(Weak) = 0{,}8112$$

Wind Ağırlık toplamı

$$H(Wind) = \left(\frac{6}{14} \times 1\right) + \left(\frac{8}{14} \times 0{,}8112\right)$$

$$H(Wind) = 0{,}8921$$

Wind Kazancı

$$IG(Wind) = 0{,}943 - 0{,}8921$$

$$IG(Wind) = 0{,}0509$$

Kök Düğüm Outlook belirlendi.

Outlook (Sunny) - Temperature'in Entropisi

Sunny_Hot : 0 Yes , 2 No

$$H(Sunny\_Hot) = 0$$

Sunny_Mild : 1 Yes , 1 No

$$H(Sunny\_Mild) = 1$$

Sunny_Cold : 1 Yes , 0 No

$$H(Sunny\_Cold) = 0$$

Sunny_Temperature Ağırlık toplamı

$$H(Sunny\_Temperature) = \left(\frac{2}{5} \times 0\right) + \left(\frac{2}{5} \times 1\right) + \left(\frac{1}{5} \times 0\right)$$

$$H(Temperature) = 0{,}4$$

Sunny_Temperature Kazancı

$$IG(Sunny\_Temperature) = H(sunny) - H(Sunny\_Temperature)$$

$$IG(Sunny\_Temperature) = 0{,}971 - 0{,}4$$

$$IG(Temperature) = 0{,}571$$

Day	Outlook	Temp.	Humidity	Wind	Decision	Day	Outlook	Temp.	Humidity	Wind	Decision
1	Sunny	Hot	High	Weak	No	8	Sunny	Mild	High	Weak	No
2	Sunny	Hot	High	Strong	No	9	Sunny	Cool	Normal	Weak	Yes
3	Overcast	Hot	High	Weak	Yes	10	Rain	Mild	Normal	Weak	Yes
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5	Rain	Cool	Normal	Weak	Yes	12	Overcast	Mild	High	Strong	Yes
6	Rain	Cool	Normal	Strong	No	13	Overcast	Hot	Normal	Weak	Yes
7	Overcast	Cool	Normal	Strong	Yes	14	Rain	Mild	High	Strong	No

Sunny_Humidity'in Entropisi

Sunny_High : 0 Yes , 3 No

$$H(Sunny\_High) = 0$$

Sunny_Normal : 2 Yes , 0 No

$$H(Sunny\_Normal) = 0$$

Sunny_Humidity Ağırlık toplamı

$$H(Sunny\_Humidity) = \left(\left(\frac{3}{5} \times H(Sunny\_High) \right) + \left(\frac{2}{5} \times H(Sunny\_Normal) \right) \right)$$

$$H(Sunny\_Humidity) = 0$$

Sunny_Humidity Kazancı

$$IG(Humidity) = 0{,}971 - 0$$

$$IG(Humidity) = 0{,}971$$

"Burda kazanç maksimum olduğu için 'wind' parametresine bakılmadı"

Edinilen tecrübelerden sonra Rain düğümü için 'Temperature' ve 'Humidity' yerine öncelikle 'Wind' parametresi gözden geçirelecektir.

Rain_Wind'in Entropisi

Rain_Strong : 0 Yes , 2 No

$$H(Rain\_Strong) = 0$$

Rain_Weak : 3 Yes , 0 No

$$H(Rain\_Weak) = 0$$

Rain_Wind Ağırlık toplamı

$$H(Rain\_Wind) = \left(\left(\frac{2}{5} \times H(Rain\_Weak) \right) + \left(\frac{3}{5} \times H(Rain\_Weak) \right) \right)$$

$$H(Rain\_Wind) = 0$$

Rain_Wind Kazancı

$$IG(Rain\_Wind) = 0{,}971 - 0$$

$$IG(Rain\_Wind) = 0{,}971$$