**NAMA :Aziz Galih Herdianto**

**NIM :A11.2022.14483  
  
1. Hitung Entropy untuk setiap atribut:**

* **Entropy Total = -(3/14)\*log2(3/14) - (8/14)\*log2(8/14) - (3/14)\*log2(3/14) = 0.9403**
* **Entropy Outlook:** 
  + **Entropy (Sunny) = -(2/5)\*log2(2/5) - (3/5)\*log2(3/5) = 0.9710**
  + **Entropy (Overcast) = 0 (karena semua bermain)**
  + **Entropy (Rainy) = -(2/5)\*log2(2/5) - (3/5)\*log2(3/5) = 0.9710**
  + **Entropy Outlook = (5/14)\*0.9710 + (4/14)\*0 + (5/14)\*0.9710 = 0.6939**
* **Entropy Temperature:** 
  + **Entropy (Hot) = -(2/6)\*log2(2/6) - (4/6)\*log2(4/6) = 0.9183**
  + **Entropy (Mild) = -(4/6)\*log2(4/6) - (2/6)\*log2(2/6) = 0.9183**
  + **Entropy (Cool) = 0 (karena semua bermain)**
  + **Entropy Temperature = (6/14)\*0.9183 + (6/14)\*0.9183 + (2/14)\*0 = 0.8492**
* **Entropy Humidity:** 
  + **Entropy (High) = -(7/10)\*log2(7/10) - (3/10)\*log2(3/10) = 0.8812**
  + **Entropy (Normal) = 0 (karena semua bermain)**
  + **Entropy Humidity = (10/14)\*0.8812 + (4/14)\*0 = 0.6294**
* **Entropy Windy:** 
  + **Entropy (True) = -(3/9)\*log2(3/9) - (6/9)\*log2(6/9) = 0.9183**
  + **Entropy (False) = -(5/5)\*log2(5/5) = 0**
  + **Entropy Windy = (9/14)\*0.9183 + (5/14)\*0 = 0.6051**

**2. Hitung Gain untuk setiap atribut:**

* **Gain(Outlook) = Entropy(Total) - Entropy(Outlook) = 0.9403 - 0.6939 = 0.2464**
* **Gain(Temperature) = Entropy(Total) - Entropy(Temperature) = 0.9403 - 0.8492 = 0.0911**
* **Gain(Humidity) = Entropy(Total) - Entropy(Humidity) = 0.9403 - 0.6294 = 0.3109**
* **Gain(Windy) = Entropy(Total) - Entropy(Windy) = 0.9403 - 0.6051 = 0.3352**

**3. Berdasarkan nilai Gain, atribut "Windy" memiliki Gain tertinggi, sehingga akan menjadi akar pohon keputusan.**Windy

/ \

True False

/ \

Play Don't Play