<u>First Forecast Logic</u>
Ideal variables
Temperature = 70 °F
Dewpoint = 60 °F
Wind = 0 MPH

Variable Weights
Temperature = 4.4
Condition = 8.3
Dewpoint = 0.1
Wind = 3.7

Point Determination
Temp. points = (|(Ideal - Forecast)|/2) * weight
Dewpoint points:
      If Forecast >= Ideal, = (|(Ideal - Forecast)|/2) * weight
      Else = 0
Wind points = (Forecast/2) * weight
Conditions points = Points * weight
      Sunny = 0 points
      Partly Cloudy = 0 points
      Overcast = 1 point
      Rain = 5 points
      Snow = 5 points
      Sleet = 5
      Graupel = 5
      Lightning = 7
      Tornado = 5

Sum of all points =< 50 → picnic
Sum of all points > 50 ¬ picnic

Scenarios
Forecast: It is forecasted to be overcast with 65 °F temperatures and 45 °F dewpoints. The winds are expected to remain calm, at about 4 MPH.

Temperature:
      (|70 °F - 65 °F|/2) * 4.4 = 11 points
Dewpoint:
      45 °F < 60 F = 0 points
Winds:
      (4/2) * 3.7 = 7.4 points
Condition:
      Overcast = (1 * 8.3) = 8.3 points

Sum:

$$11 + 0 + 7.4 + 8.3 = 26.7 \text{ points}$$

$26.7 =< 50$

Conclusion: The forecast is good for a picnic.

Second Forecast Logic:
Weather Conditions
Sunny → picnic
Partly cloudy → picnic
Overcast ¬ picnic
Rainy → check PoP
Lightning ¬ picnic
Tornado ¬ picnic
Snow ¬ picnic
Graupel ¬ picnic
Sleet ¬ picnic

Temperature
(Temp < 50 °F) ¬ picnic
(90 °F > Temp >= 50 °F) → picnic

Dewpoint
(Dewpoint < 70 °F) → picnic
(Dewpoint >= 70 °F) ¬ picnic

Winds
(Winds >= 15 mph) ¬ picnic
(Winds < 15 mph) → picnic

Precipitation
PoP < 50% → picnic
PoP >= 50% ¬ picnic

Scenario
Forecast: Precipitation will end, leading to partly cloudy skies with isolated rain and dewpoints in the 60s. There is a 30% chance of rain forecasted.

Partly cloudy → picnic
Rainy → check PoP
PoP < 50% → picnic
(Dewpoint < 70 °F) → picnic

Conclusion: The weather forecast is favorable for a picnic.

Second Observation Logic:

Weather Conditions
Sunny → picnic
Partly cloudy → picnic
(Overcast ^ light clouds) → check weather conditions forecast
(Overcast ^ dark clouds) ¬ picnic
Any dark clouds → check weather conditions forecast
(Precipitation ^ no clearing) ¬ picnic
(Precipitation ^ distant clearing) → check weather conditions forecast

Temperature
Very warm temperatures ¬ picnic
Warm temperatures → check temperature forecast
Comfortable temperature → picnic
Cold temperatures → check temperature forecast
Very cold temperatures ¬ picnic

Humidity
Very humid ¬ picnic
Humid → check dewpoint forecast
Not humid → picnic

Winds
Windy ¬ picnic
Breezy → check wind forecast
Calm winds → picnic

Scenario
Observations: Comfortable temperatures with sunny skies, mild humidity, and calm winds.

Sunny → picnic
Comfortable temperature → picnic
Humid → check dewpoint forecast
Calm winds → picnic

Forecast: A dewpoint of 69°F is forecasted.

(Dewpoint < 70 °F) → picnic

Conclusion: The weather is favorable for a picnic.