### Bayesian network to diagnose CORONA infection

**Program:**

**# Define the conditional probabilities**

**# P(COVID | Fever, Cough, BreathingDifficulty)**

**P\_COVID\_given\_symptoms = {**

**(1, 1, 1): 0.15, # P(COVID = Yes | Fever = Yes, Cough = Yes, BreathingDifficulty = Yes)**

**(1, 1, 0): 0.1, # P(COVID = Yes | Fever = Yes, Cough = Yes, BreathingDifficulty = No)**

**(1, 0, 1): 0.4, # P(COVID = Yes | Fever = Yes, Cough = No, BreathingDifficulty = Yes)**

**(1, 0, 0): 0.1, # P(COVID = Yes | Fever = Yes, Cough = No, BreathingDifficulty = No)**

**(0, 1, 1): 0.7, # P(COVID = Yes | Fever = No, Cough = Yes, BreathingDifficulty = Yes)**

**(0, 1, 0): 0.3, # P(COVID = Yes | Fever = No, Cough = Yes, BreathingDifficulty = No)**

**(0, 0, 1): 0.2, # P(COVID = Yes | Fever = No, Cough = No, BreathingDifficulty = Yes)**

**(0, 0, 0): 0.01 # P(COVID = Yes | Fever = No, Cough = No, BreathingDifficulty = No)**

**}**

**# Given evidence**

**fever = 1 # Fever = Yes**

**cough = 1 # Cough = Yes**

**breathing\_difficulty = 1 # BreathingDifficulty = Yes**

**# Calculate P(COVID = Yes) and P(COVID = No)**

**P\_COVID\_yes = P\_COVID\_given\_symptoms[(fever, cough, breathing\_difficulty)]**

**P\_COVID\_no = 1 - P\_COVID\_yes**

**# Print the result in the desired format**

**print("COVID P(COVID)")**

**print(f"0 {P\_COVID\_no:.2f}")**

**print(f"1 {P\_COVID\_yes:.2f}")**

**Output:**

**COVID P(COVID)**

**0 0.85**

**1 0.15**