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**EX. NO: 7**

**DATE: 17.05.2025**

**EX. NAME: IMPLEMENTATION OF BACKWARD CHAINING**

**PROGRAM:**

# Knowledge Base (Rules in IF-THEN format)

knowledge\_base = {

 "flu": [["cough", "fever"]],

 "fever": [["sore\_throat"]],

}

# Known facts

facts = {"sore\_throat", "cough"}

# Backward chaining function

def backward\_chaining(goal):

 if goal in facts: # If the goal is a known fact, return True

 return True

 if goal in knowledge\_base: # If the goal has rules in KB

 for conditions in knowledge\_base[goal]: # Check each rule

 if all(backward\_chaining(cond) for cond in conditions): # Recursively verify  return True

 return False # If no rule or fact supports the goal, return False

# Query: Does the patient have flu?

query = "flu"

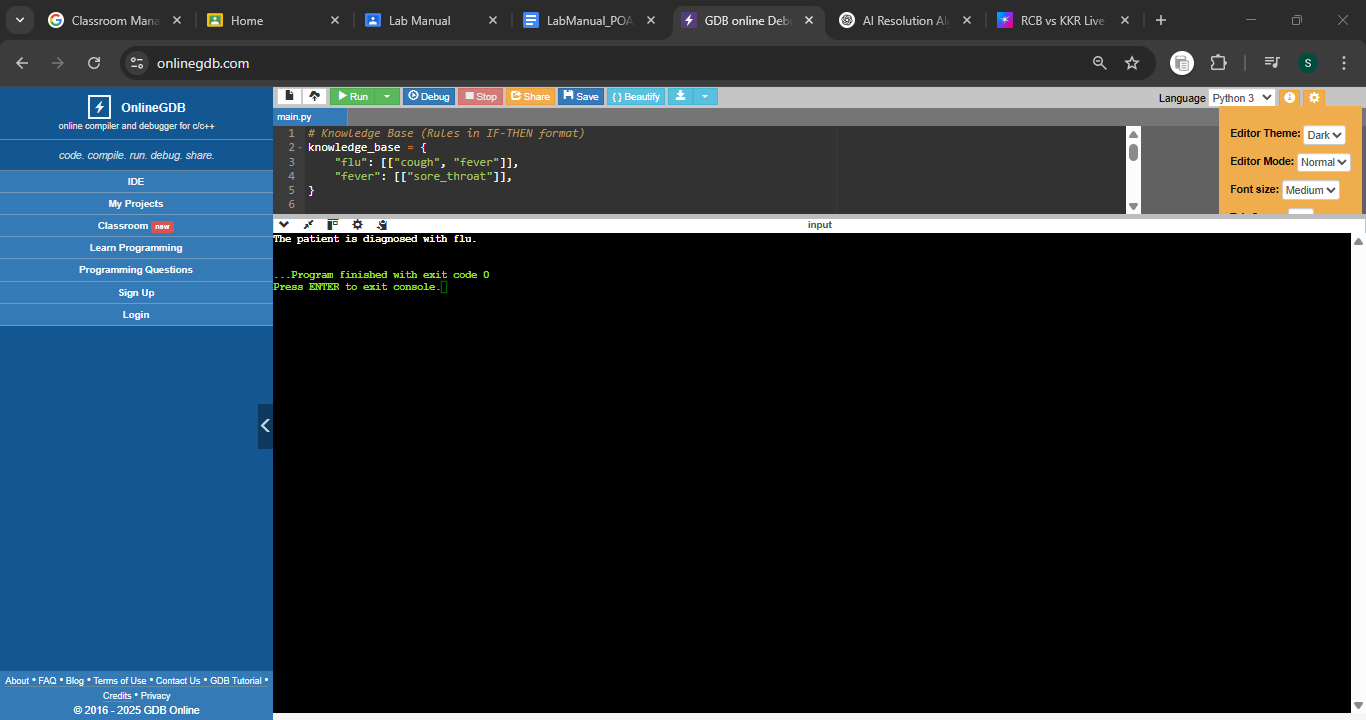
if backward\_chaining(query):

 print(f"The patient is diagnosed with {query}.")

else:

 print(f"The patient does NOT have {query}.")

**OUTPUT:**

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