**NAME: SIDDHARTH R**

**REGISTER NUMBER: 241801269**

**EX. NO: 8**

**DATE: 17.5.2025**

**EX. NAME: IMPLEMENTION OF FORWARD CHAINING**

**PROGRAM:**

**# Knowledge Base: Rules in IF-THEN format**

**knowledge\_base = [**

**(["cough", "fever"], "flu"),**

**(["sore\_throat", "runny\_nose"], "cold"),**

**(["sore\_throat"], "fever") # Sore throat can lead to fever**

**]**

**# Given initial facts**

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

**# Forward Chaining Function**

**def forward\_chaining():**

**Artificial Intelligence and Machine Learning/AI23231/34**

**inferred = True # Keep looping as long as new facts are added**

**while inferred:**

**inferred = False # Stop if no new fact is added in an iteration**

**for conditions, conclusion in knowledge\_base:**

**if all(condition in facts for condition in conditions) and conclusion not in facts:  facts.add(conclusion) # Add the inferred fact**

**inferred = True # Mark that we inferred a new fact**

**# Run forward chaining**

**forward\_chaining()**

**# Check if flu or cold is inferred**

**if "flu" in facts:**

**print("The patient is diagnosed with flu.")**

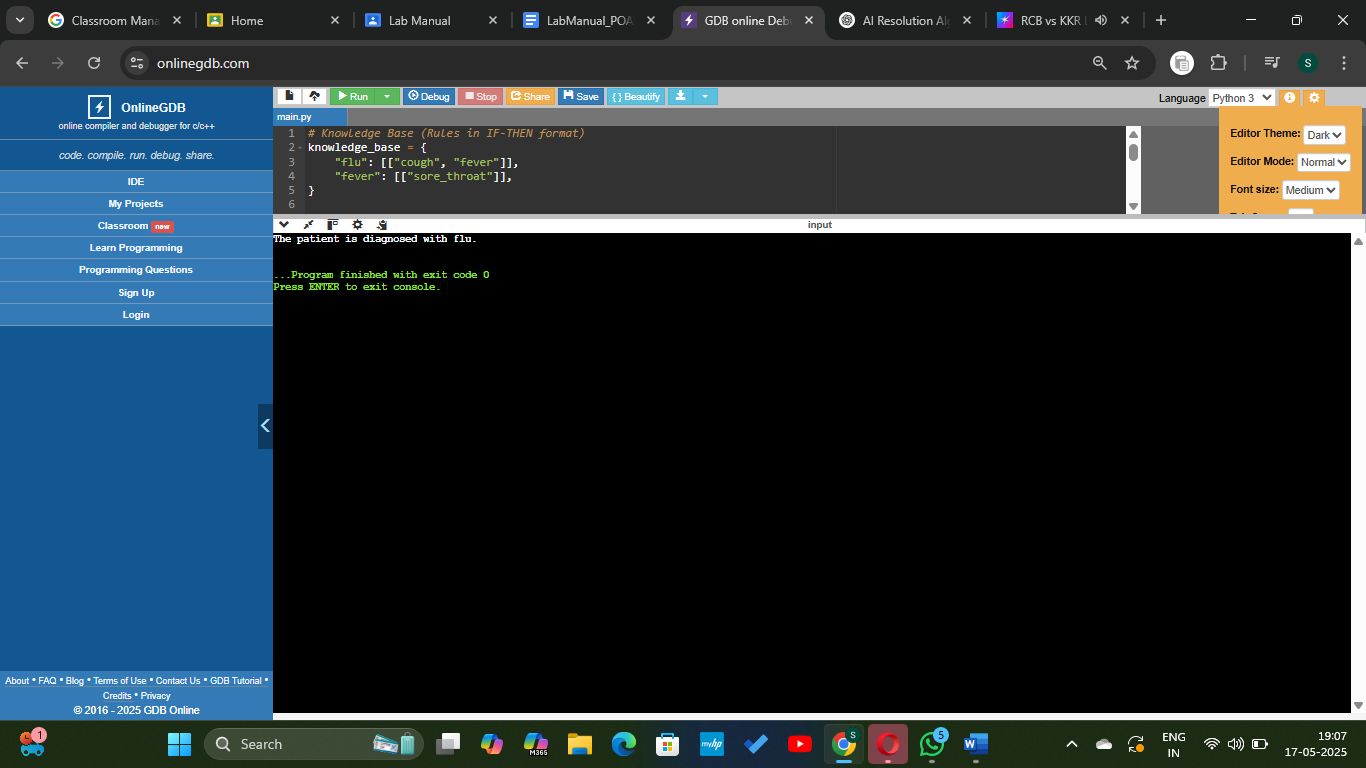
**elif "cold" in facts:**

**print("The patient is diagnosed with cold.")**

**else:**

**print("No conclusive diagnosis could be made.")**

**OUTPUT:**

****