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EXP.NO: 7

EXP.NAME: FORWARD CHAINING

```python
3   # Knowledge Base (Rules in IF-THEN format)
4 ▾ knowledge_base = {
5       "flu": [["cough", "fever"]],
6       "fever": [["sore_throat"]],
7   }
8
9   # Known facts
10  facts = {"sore_throat", "cough"}
11
12  # Backward chaining function
13 ▾ def backward_chaining(goal):
14 ▾     if goal in facts:  # If the goal is a known fact, return True
15          return True
16 ▾     if goal in knowledge_base:  # If the goal has rules in KB
17 ▾         for conditions in knowledge_base[goal]:  # Check each rule
18 ▾             if all(backward_chaining(cond) for cond in conditions):  #
                     Recursively verify
19                  return True
20      return False  # If no rule or fact supports the goal, return False
21
22  # Query: Does the patient have flu?
23  query = "flu"
24 ▾ if backward_chaining(query):
25      print(f"The patient is diagnosed with {query}.")
26 ▾ else:
27      print(f"The patient does NOT have {query}.")
```

Output Clear

The patient is diagnosed with flu.

=== Code Execution Successful ===