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## IMPLEMENTATION OF BACKWARD CHAINING

PROGRAM

```
knowledge_base = {  
    "flu": ["cough", "fever"],  
    "fever": ["sore_throat"],  
}  
  
facts = {"sore_throat", "cough"}  
  
def backward_chaining(goal, visited=None):  
    if visited is None:  
        visited = set()  
  
    if goal in facts:  
        return True  
  
    if goal in visited: # Prevent infinite loops  
        return False  
  
    visited.add(goal)  
  
    if goal in knowledge_base:  
        for conditions in knowledge_base[goal]:  
            if all(backward_chaining(cond, visited) for cond in conditions):  
                return True  
    return False  
  
query = "flu"
```

```
if backward_chaining(query):
```

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

```
else:
```

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

