

EX:8

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R.K.Viswesh

241801319

IMPLEMENTATION 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 Process

```
def forward_chaining():
```

```
    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:

```

===== RESTART: C:/Users/yadhu/puc/poai-7.py =====
The patient is diagnosed with flu.
>>>

```