

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():
```

```
    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:

The patient is diagnosed with flu.

ward channel

ment using

mult:

Thus the given can-band discussion program
has been implemented successfully and the program has
github link.