EXPERIMENT:29 Write a Prolog Program for forward Chaining. Incorporate required queries.

PROGRAM:

```
% Facts
fact(hungry).
fact(raining).
fact(fever).

% Rules (if conditions are true, then infer new fact)
rule(eat, [hungry]).
rule(stay_home, [raining]).
rule(take_medicine, [fever]).

% Forward chaining inference
infer(NewFact) :-
    rule(NewFact, Conditions),
    all_facts_true(Conditions),
    \+ fact(NewFact),     % Only infer if not already known
    assert(fact(NewFact)),
    write('Inferred: '), write(NewFact), nl.

all_facts_true([]).
all_facts_true([H|T]) :-
    fact(H),
    all_facts_true(T).

% Run forward chaining until no new facts
forward_chain :-
    infer(_), !,   % if a new fact inferred, continue
    forward_chain.
forward_chain.    % stops when no more facts can be inferred
```

OUTPUT: