Part(I) : English Sentences

(1) If it is sunny and warm day you will enjoy.

(2) If it is warm and pleasant day you will do strawberry picking

(3) If it is raining then no strawberry picking.

(4) If it is raining you will get wet.

(5) It is warm day

(6) It is raining

(7) It is sunny

Part(II) : Propositional Statements

(1) enjoy ← sunny ∧ warm

(2) strawberry_picking ← warm ∧ pleasant

(3) ~strawberry_picking ← raining

(4) wet ← raining

(5) warm

(6) raining

(7) sunny

Part(III) : CNF of Part(II)

(1) (enjoy ∨~sunny∨~warm) ∧

(2) (strawberry_picking ∨~warm∨~pleasant) ∧

(3) (~strawberry_picking ∨~raining) ∧

(4) (wet ∨~raining) ∧

(5) (warm) ∧

(6) (raining) ∧

(7) (sunny)

Part(IV) : Other statements we want to prove by Refutation

(Goal 1) You are not doing strawberry picking.

(Goal 2) You will enjoy.

(Goal 3) Try it yourself : You will get wet.

PROLOG

LINK to download PROLOG: https://www.swi-prolog.org/Download.html
Save code files from extension .pl
Run in cmd
Use command- swipl to start prolog on cmd
Run the code using syntax- [filename].

English Sentence	Propositional Logic	CNF Clause	Prolog form
If it is sunny and warm day you will enjoy	enjoy ← sunny ∧ warm	(~sunny ∨ ~warm ∨ enjoy)	enjoy :- sunny, warm.
If it is warm and pleasant day you will do strawberry picking	strawberry_picking ← warm ∧ pleasant	(~warm ∨ ~pleasant ∨ strawberry_picking)	strawberry_picking :- warm, pleasant.
If it is raining then no strawberry picking	~strawberry_picking ← raining	(~raining ∨ ~strawberry_picking)	not_strawberry_picking :- raining.
If it is raining you will get wet	wet ← raining	(~raining ∨ wet)	wet :- raining.
It is warm day	warm	warm	warm.
It is raining	raining	raining	raining.
It is sunny	sunny	sunny	Sunny.

CONTENTS OF FILE weather.pl

```
% Facts (atomic statements)
% ----------------------------
warm.
raining.
sunny.
pleasant.

% ----------------------------
% Rules (from original English sentences)
% ----------------------------
% Step 1: Convert to FOL (with predicates)
enjoy :- sunny, warm.
strawberry_picking :- warm, pleasant.
not_strawberry_picking :- raining.
wet :- raining.

% ----------------------------
% Step 2: Remove implications (manual for this problem)
% A -> B becomes ~A v B
% remove_implications(implies(A,B), CNF_form).

remove_implications(implies(and(sunny, warm), enjoy), or(not(sunny), or(not(warm),
enjoy))).
remove_implications(implies(and(warm, pleasant), strawberry_picking), or(not(warm),
or(not(pleasant), strawberry_picking))).
remove_implications(implies(raining, not_strawberry_picking), or(not(raining),
not_strawberry_picking)).
remove_implications(implies(raining, wet), or(not(raining), wet)).
```

TASK:

Do the remaining operations to perform resolution refutation and show querying in prolog