Aim: 1

Write simple fact for following:A. Ram likes mango.B. Seema is a girl.C. Bill likes Cindy.D. Rose is red.E. John owns gold

Solution :

```
% Facts

1. Ram likes mango.
2. Seema is a girl.
3. Bill likes Cindy.
4. Rose is red.
5. John owns gold.

% Clauses

 likes(ram ,mango).
 girl(seema).
 red(rose).
 likes(bill ,cindy).
 owns(john ,gold).
```

Output:

```
% Queries

 ?-likes(ram,What).
 What= mango
 ?-likes(Who,cindy).
 Who= cindy

 ?-red(What).
 What= rose
 ?-owns(Who,What).
 Who= john
 What= gold
```

Aim: 2

Write predicates one converts centigrade temperatures to Fahrenheit, the other checks if a temperature is below freezing.

Solution :

```
% Production rules:

c_to_f
f is c * 9 / 5 + 32
freezing f < = 32

% Rules:

c_to_f(C,F) :-
     F is C * 9 / 5 + 32.

freezing(F) :-
     F =< 32.
```

Output:

```
% Queries :

?- c_to_f(100,X).
X = 212
Yes
?- freezing(15).
Yes
?- freezing(45).
No
```

Aim: 3

Write a program to solve the Monkey Banana problem

Computer program development

Solution :

```
/* Description:

Imagine a room containing a monkey, chair and
some bananas. That have been hanged from the
center of ceiling. If the monkey is clever
enough he can reach the bananas by placing the
chair directly below the bananas and climb on
the chair .

The problem is to prove the monkey can reach the
bananas.

The monkey can perform the following actions:
1) Walk on the floor
2) Climb the box
3) Push the box around(if it is beside the box).
4) Grasp the banana if it is standing on the box
directly under the banana.

*/

% Production rules:

can_reach □ clever,close.
get_on: □ can_climb.

under □ in room,in_room, in_room,can_climb.
Close □ get_on,under | tall

% Clauses:
```

```
in_room(bananas).
in_room(chair).
in_room(monkey).
clever(monkey).
can_climb(monkey, chair).
tall(chair).
can_move(monkey, chair, bananas).
can_reach(X, Y):-clever(X),close(X, Y).
get_on(X,Y):-
    can_climb(X,Y).
under(Y,Z):-
    in_room(X),in_room(Y),
    in_room(Z),can_climb(X,Y,Z).
close(X,Z):-
    get_on(X,Y), under(Y,Z);
    tall(Y).
```

Output:

```
% Queries:

 ?- can_reach(A, B).
 A = monkey.
 B = banana.

 ?- can_reach(monkey, banana).
 Yes.
```