% ------------------------------------

% PLANETS DATABASE

% ------------------------------------

% planet(Name, OrderFromSun, Diameter(km), Moons, Type).

planet(mercury, 1, 4879, 0, terrestrial).

planet(venus, 2, 12104, 0, terrestrial).

planet(earth, 3, 12742, 1, terrestrial).

planet(mars, 4, 6779, 2, terrestrial).

planet(jupiter, 5, 139820, 79, gas\_giant).

planet(saturn, 6, 116460, 82, gas\_giant).

planet(uranus, 7, 50724, 27, ice\_giant).

planet(neptune, 8, 49244, 14, ice\_giant).

% ------------------------------------

% Rules

% ------------------------------------

% bigger\_than(Planet1, Planet2) :- Planet1 has larger diameter than Planet2

bigger\_than(P1, P2) :-

planet(P1, \_, D1, \_, \_),

planet(P2, \_, D2, \_, \_),

D1 > D2.

% has\_more\_moons\_than(Planet1, Planet2)

has\_more\_moons\_than(P1, P2) :-

planet(P1, \_, \_, M1, \_),

planet(P2, \_, \_, M2, \_),

M1 > M2.

% ------------------------------------

% Main Program (runs on load)

% ------------------------------------

:- initialization(main).

main :-

nl, write('=== PLANETS DATABASE ==='), nl, nl,

write('Terrestrial planets:'), nl,

forall(planet(Name, \_, \_, \_, terrestrial),

(write(' - '), write(Name), nl)),

nl,

write('Gas giants:'), nl,

forall(planet(Name, \_, \_, \_, gas\_giant),

(write(' - '), write(Name), nl)),

nl,

write('Ice giants:'), nl,

forall(planet(Name, \_, \_, \_, ice\_giant),

(write(' - '), write(Name), nl)),

nl,

write('Example Rule: Which planet is bigger than Earth?'), nl,

forall(bigger\_than(Name, earth),

(write(' - '), write(Name), nl)),

nl,

write('Example Rule: Which planet has more moons than Mars?'), nl,

forall(has\_more\_moons\_than(Name, mars),

(write(' - '), write(Name), nl)),

nl,

halt.