ASSIGNMENT 1 (160001054)

1-
Rules
father(X,Y) :- parent(X,Y),male(X).
sister(X,Y) :- parent(Z,X),parent(Z,Y),female(X),X\=Y.
grandmother(X,Y) :- parent(Z,Y),parent(X,Z),female(X).
cousin(X,Y) :- parent(Z,X),parent(A,Y),parent(B,Z),parent(B,A),A\=Z.

?- father(bob,lisa).
true .

?- sister(lisa,paul).
true .

?- grandmother(juliet,harry).
true.

?- cousin(harry,john).
True .

2-
Rules.
brother(X,Y) :- parent(Z,X),parent(Z,Y),male(X),X\=Y.
%uncle
uncle(X,Y) :- parent(Z,Y),brother(X,Z).

xor(X,Y) :- (X,Y);not(X;Y).
mother(X,Y) :- female(X),parent(X,Y).
father(X,Y) :- male(X),parent(X,Y).

%half-sister
half-sister(X,Y) :- xor((mother(Z,Y),mother(Z,X)),(father(Z,Y),father(Z,X))).

?- uncle(keith,ann).
true .

?- uncle(ann,marry).
false.

?- uncle(john,ann).
false.

?- half-sister(ann,sylvia).
True.

3-
Rule
rule() :- soldier(aardvark,Z),soldier(flume,Z).

?- rule().
True.

4-
Rule
ancestor(X,Y) :- parent(X,Y);(ancestor(X,Z);parent(Z,Y)).

?- ancestor(chester,ron).
true .