INTRODUCTION TO PROLOG

```prolog
female(pam).
female(liz).
female(pat).
female(ann).
male(jim).
male(bob).
male(tom).
male(peter).
male(at).
parent(pam,bob).
parent(tom,bob).
parent(tom,liz).
parent(bob,ann).
parent(bob,pat).
parent(pat,jim).
parent(bob,peter).
parent(peter,jim).
mother(X,Y):- parent(X,Y),female(X).
father(X,Y):- parent(X,Y),male(X).
haschild(X):- parent(X,_).
sister(X,Y):- parent(Z,X),parent(Z,Y),female(X),X\==Y.
brother(X,Y):-parent(Z,X),parent(Z,Y),male(X),X\==Y.
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```prolog
obs(tree).
obs(human).
obs(car).
obs(roadblock).
brakes(X):- obs(X).

acc(X):-!,obs(X).
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```prolog
father(a,b).
    father(a,c).
    father(b,d).
    father(b,e).
    father(c,f).

brother(X,Y) :- father(Z,X), father(Z,Y), not(X=Y).
    cousin(X,Y) :- father(Z,X), father(W,Y), brother(Z,W).
    grandson(X,Y) :- father(Z,X), father(Y,Z).
    descendent(X,Y) :- father(Y,X).
    descendent(X,Y) :- father(Z,X), descendent(Z,Y).
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```prolog
%Define a predicate quicksort(L,K) which, given a list of integers L,
% returns an ordered list K obtained from L with the method of
% quicksort.Solution
   quicksort([],[]).
   quicksort([X|L],K) :- split(X,L,L1,L2),
                         quicksort(L1,K1),
                         quicksort(L2,K2),
                         append(K1,[X|K2],K).

   split(_,[],[],[]).
   split(X,[Y|L],K,[Y|M]) :- X < Y, split(X,L,K,M).
   split(X,[Y|L],[Y|K],M) :- X >= Y, split(X,L,K,M).
```