**Factorial using recursion**

fact(0,1).

fact(N,R):-N>0,N1 is N-1,fact(N1,R1),R is N\*R1.

**Factorial using non recursion**

factorial(N,R):-fact(N,R,0,1).

fact(N,R,I,T):- I<N, J is I+1,T1 is J\*T, fact(N,R,J,T1).

fact(N,R,N,R).

**Least**

minimum([X], X).

minimum([X|Xs], X) :- minimum(Xs, Y), X < Y.

minimum([X|Xs], Y) :- minimum(Xs, Y), X >= Y.

**Grandmother relationship**

grandmother(X,Y):-mother(X,Z),parent(Z,Y).

parent(X,Y):-father(X,Y).

parent(X,Y):-mother(X,Y).

mother(mary,jenny).

mother(mary,james).

mother(jenny,mike).

mother(kitty,john).

father(john,jame).

father(james,jack).

**Sum of integers**

sum(0,0).

sum(N,R):-N>0, N1 is N-1, sum(N1,R1), R is N+R1.

**Size of a list**

size([],0).

size([H|T],X):-size(T,X1), X is X1+1.

**Sum of elements in the list**

sum([],0).

sum([H|T],X):-sum(T,X1),X is X1+1.

**Membership of a list**

member(X,[X|\_]).

member(X,[\_|T]):-member(X,T).

**n th element in list**

nth([X|\_],1,X).

nth([\_|T],N,X):-N1 IS N1-1, nth(T,N1,X).