```
male(pete).
male(mark).
male(john).
male(frank).
male(tom).
male(matt).
male(henry).
male(todd).

female(lilly).
female(kate).
female(anne).
female(alice).
female(jenny).

parent(pete, mark).
parent(pete, tom).
parent(pete, anne).
parent(mark, lilly).
parent(mark, john).
parent(mark, frank).
parent(tom, kate).
parent(anne, alice).
parent(anne, matt).
parent(alice, henry).
parent(matt, jenny).
parent(matt, todd).

sister(Sis, Sibling) :- female(Sis), parent(Parent, Sis), parent(Parent, Sibling), Sis \= Sibling.
brother(Bro, Sibling) :- male(Bro), parent(Parent, Bro), parent(Parent, Sibling), Bro \= Sibling.
sibling(Sibling1, Sibling2) :- parent(Parent, Sibling1), parent(Parent, Sibling2), Sibling1 \= Sibling2.
father(Dad, Child) :- parent(Dad, Child), male(Dad).
mother(Mom, Child) :- parent(Mom, Child), female(Mom).
grandparent(GrandParent, Child) :- parent(Parent, Child), parent(GrandParent, Parent).
```

 *parent*(pete, mark).

true

 *parent*(anne, jenny).

false

 *father*(X, todd).

X = matt

 *sibling*(todd, X).

X = jenny
false

 *brother*(X, lilly).

X = john
X = frank

 *grandparent*(X, henry).

X = anne

 *sister*(X, alice).

false

 *brother*(frank, kate).

false

 *mother*(X, matt).

X = anne

 *brother*(mark, anne).

true

```
maximum_number([X], X).
maximum_number([X|Y], X) :- maximum_number(Y, Z), X >= Z.
maximum_number([X|Y], N) :- maximum_number(Y, N), N > X.
```

trace, *maximum_number*([1, 2], X).

Call: *maximum_number*([1, 2], _3998)
Call: *maximum_number*([2], _4310)
Exit: *maximum_number*([2], 2)
Call: 1>=2
Fail: 1>=2
Redo: *maximum_number*([2], _4314)
Call: *maximum_number*([], _4310)
Fail: *maximum_number*([], _4310)
Redo: *maximum_number*([2], _4314)
Call: *maximum_number*([], _4310)
Fail: *maximum_number*([], _4310)
Fail: *maximum_number*([2], _4310)
Redo: *maximum_number*([1, 2], _3998)
Call: *maximum_number*([2], _3998)
Exit: *maximum_number*([2], 2)
Call: 2>1
Exit: 2>1
Exit: *maximum_number*([1, 2], 2)

X = 2

Redo: *maximum_number*([2], _3998)
Call: *maximum_number*([], _4730)
Fail: *maximum_number*([], _4730)
Redo: *maximum_number*([2], _3998)
Call: *maximum_number*([], _3998)
Fail: *maximum_number*([], _3998)
Fail: *maximum_number*([2], _3998)
Fail: *maximum_number*([1, 2], _3998)

false

maximum_number([1, 8, 3, 6, 5, 4, 7, 2], X).

X = 8

false

```
union_list([], X, X).
union_list([X|Y], Z, W) :- member(X, Z), !, union_list(Y, Z, W).
union_list([X|Y], Z, [X|W]) :- union_list(Y, Z, W).
```

 *union_list*([], [], X).

X = []

 *union_list*([1, 2, 3], [1, 2, 3], X).

X = [1, 2, 3]

 *union_list*([1, 2, 3], [4, 5, 6], X).

X = [1, 2, 3, 4, 5, 6]

 *union_list*([1, 2, 3], [], X).

X = [1, 2, 3]

 *union_list*([], [1, 2, 3], X).

X = [1, 2, 3]

 *union_list*([1], [1, 2, 3], X).

X = [1, 2, 3]

 *union_list*([1, 2, 3], [1], X).

X = [2, 3, 1]

 *union_list*([1], [1], X).

X = [1]