Adding family member and relationship.

```
person(alice).
person(husband).
person(son).
person(daughter).
person(brother).

child(son).
child(daughter).

male(husband).
male(son).
male(brother).

female(alice).
female(daughter).

twin(alice,brother).
twin(brother,alice).
twin(son,daughter).
twin(daughter,son).
istwin(X):-twin(X,_).

younger(son, alice).
younger(daughter,alice).
younger(son,husband).
younger(daughter,husband).
younger(son,brother).
younger(daughter,brother).
```

Adding rules.

```
alone(P):-
    person(P),
    child(P).

bar(F,M):-
    person(F),female(F),
    person(M),male(M).

notTogether(A,H):-A=alice,H=husband.
notTogether(A,H):-A=husband,H=alice.
```

One killer and one victim, they are different people.

```
person(Killer),
person(Victim),
```

Function to research.

```
45    /*Research function*/
46    searching(Killer,Victim,Bara,Barb,Alone):-
47        person(Killer),
48        person(Victim),
49
50    /*The victim's twin was innocent.*/
51        istwin(Victim),
52        \+ twin(Killer,Victim),
53
54    /*The killer was younger than the victim.*/
55        younger(Victim,Killer),
56
57    /*Alice and her husband were not together at the time of the murder.*/
58        \+ notTogether(Killer,Victim),
59        Killer\=Victim,
60
61    /*Killer and Victim were not in the bar*/
62        bar(Bara,Barb),
63        Bara\=Killer,Barb\=Victim,
64        Bara\=Victim,Barb\=Killer,
65
66    /*Alice and husband were not together*/
67        \+ notTogether(Bara,Barb),
68
69        alone(Alone),
70        Alone\=Bara,Alone\=Barb,
71        Alone\=Killer,Alone\=Victim.
```

Print output.

```
/*Print output*/
printOut:-
    searching(Killer,Victim,Bara,Barb,Alone),
    write(Killer),
    write(' killed '),
    write(Victim),nl,
    write(Bara),
    write(' and '),
    write(Barb),
    write(' were together in the bar.'),nl,
    write(Alone),
    write(' was alone.').
```

Output:

```
% c:/users/yaohan/Desktop/AI Ex3/Yaohan_Xing
husband killed son
alice and brother were together in the bar.
daughter was alone.
% c:/Users/yaohan/Desktop/AI Ex3/Yaohan_Xing
```