

U18CO018
Shekhaliya Shubham
PPL
Assignment 2

Code:

- Facts

female(mary).

female(sandra).

female(juliet).

female(lisa).

female(lily).

male(peter).

male(paul).

male(dick).

male(bob).

male(harry).

parent(peter, dick).

parent(dick, lily).

parent(paul, peter).

parent(paul, harry).

parent(peter, juliet).

parent(mary, dick).

parent(juliet, lily).

parent(sandra, peter).

parent(sandra, harry).

parent(mary, juliet).

husband(peter, mary).

husband(paul, sandra).

husband(dick, juliet).

husband(bob, lisa).

1.

child(X, Y) :-

parent(Y, X).

```
?- child(X, paul).  
X = peter ;  
X = harry.
```

2.

mother(X, Y) :-

female(X),

parent(X, Y).

```
?- mother(juliet, Y).  
Y = lily.
```

3.

father(X, Y) :-

male(X),

parent(X, Y).

```
?- father(X, lily).  
X = dick ;  
false.
```

4.

wife(X, Y) :-

husband(Y, X).

```
?- wife(juliet, dick).  
true.
```

```
?- wife(X, peter).  
X = mary.
```

5.

son(X, Y) :-

male(X),

parent(Y, X).

```
?- son(X, peter).  
X = dick .
```

6.

daughter(X, Y) :-

female(X),

parent(Y, X).

```
?- daughter(juliet, Y).  
Y = peter .
```

7.

brother(X, Y) :-

male(X),

parent(Z, X),

parent(Z, Y),

$X \neq Y$.

?- brother(peter, Y).

Y = harry .

?- brother(X, juliet).

X = dick .

8.

sister(X, Y) :-

female(X),

parent(Z, X),

parent(Z, Y),

$X \neq Y$.

?- sister(juliet, Y).

Y = dick .

9.

uncle(X, Y) :-

male(X),

parent(Y, Z),

brother(Z, X).

```
uncle(X, Y) :-  
    male(X),  
    parent(Y, Z),  
    sister(Z, X).
```

```
?- uncle(X, sandra).  
X = peter .
```

10.

```
aunt(X, Y) :-  
    husband(Z, X),  
    uncle(Z, Y).
```

```
?- aunt(X, sandra).  
X = mary .
```

11.

```
nephew(X, Y) :-  
    male(X),  
    uncle(Y, X).
```

```
nephew(X, Y) :-  
    male(X),  
    aunt(Y, X).
```

```
?- nephew(paul, X).  
X = peter .  
  
?- nephew(harry, Y).  
false.
```

12.

```
niece(X, Y) :-  
    female(X),  
    uncle(Y, X).
```

```
niece(X, Y) :-  
    female(X),  
    aunt(Y, X).
```

```
?- niece(sandra, harry).  
true.
```

```
?- niece(X, peter).  
X = sandra.
```