

**Name: Mihir Thakkar**  
**Class: TY A**  
**Roll No: 59**  
**Srn: 201901267**

**AI Assignment-6**

**Topic: Create a family tree in prolog.**

**Code:**

female(sunita).  
female(swati).  
female(riddhi).  
female(kavita).  
female(jonita).  
female(harsha).  
female(krupa).

male(mihir).  
male(ajay).  
male(shyam).  
male(dhairya).  
male(harsh).  
male(aditya).

parent(sunita,swati).  
parent(mihir,swati).  
parent(sunita,riddhi).  
parent(mihir,riddhi).  
parent(riddhi,shyam).  
parent(ajay,shyam).  
parent(shyam,dhairya).  
parent(kavita,dhairya).  
parent(harsh,ajay).  
parent(jonita,ajay).  
parent(harsh,aditya).  
parent(jonita,aditya).  
parent(aditya,krupa).  
parent(harsha,krupa).

married(shyam,kavita).  
married(mihir,sunita).  
married(ajay,riddhi).  
married(harsh,jonita).  
married(aditya,harsha).

married(kavita,shyam).  
married(sunita,mihir).  
married(riddhi,ajay).  
married(jonita,harsh).

married(harsha,aditya).

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

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

partner(X,Y):- married(X,Y).

maternal\_grandmother(X,Y):- female(X),parent(X,Z),female(Z),parent(Z,Y).

maternal\_grandfather(X,Y):- male(X),parent(X,Z),female(Z),parent(Z,Y).

paternal\_grandmother(X,Y):- female(X),parent(X,Z),male(Z),parent(Z,Y).

paternal\_grandfather(X,Y):- male(X),parent(X,Z),male(Z),parent(Z,Y).

uncle(X,Y):- male(X),brother(A,X),parent(A,Y).

aunt(X,Y):- female(X),married(A,X),uncle(A,Y).

cousin\_brother\_of(X,Y):- male(X),uncle(Z,X),parent(Z,Y).

cousin\_sister\_of(X,Y):- female(X),uncle(Z,X),parent(Z,Y).

mother\_in\_law(X,Y):- mother(X,Z),married(Y,Z).

father\_in\_law(X,Y):- father(X,Z),married(Y,Z).

## Output:

```
SWI-Prolog -- c:/prolog/A-59_AI-Ass6.pl
File Edit Settings Run Debug Help
Welcome to SWI-Prolog (threaded, 64 bits, version 8.4.2)
SWI-Prolog comes with ABSOLUTELY NO WARRANTY. This is free software.
Please run ?- license. for legal details.

For online help and background, visit https://www.swi-prolog.org
For built-in help, use ?- help(Topic). or ?- apropos(Word).

?- mother(X,ajay).
X = jonita.

?- father(X,ajay).
X = harsh.

?- mother_in_law(X,shyam).
false.

?- mother_in_law(X,ajay).
X = sunita
Unknown action:  (h for help)
Action?

?- father_in_law(X,ajay).
X = mihir.

?- brother(X,ajay).
X = aditya.

?- sister(X,riddhi).
X = swati.

?- maternal_grandmother(X,shyam).
Correct to: "maternal_grandmother(X,shyam)"?
Please answer 'y' or 'n'? yes
X = sunita.

?- maternal_grandfather(X,shyam).
X = mihir.

?- paternal_grandfather(X,shyam).
X = harsh.

?- paternal_grandmother(X,shyam).
X = jonita
```