

EX.NO :

DATE :

PROLOG

AIM :

To develop a family tree program using PROLOG with all possible facts, rules, and queries.

SOURCE CODE:

KNOWLEDGE BASE:

`/*FACTS :: */`

`male(peter).
male(john).
male(chris).
male(kevin).`

`female(betty).
female(jeny).
female(lisa).
female(helen).`

`parentOf(chris,peter).
parentOf(chris,betty).
parentOf(helen,peter).
parentOf(helen,betty).
parentOf(kevin,chris).
parentOf(kevin,lisa).
parentOf(jeny,john).
parentOf(jeny,helen).`

`/*RULES :: */`

`/* son,parent
* son,grandparent*/`

`father(X,Y):- male(Y),
parentOf(X,Y).`

`mother(X,Y):- female(Y),
parentOf(X,Y).`

grandfather(X,Y):- male(Y),
parentOf(X,Z),
parentOf(Z,Y).

grandmother(X,Y):- female(Y),
parentOf(X,Z),
parentOf(Z,Y).

brother(X,Y):- male(Y),
father(X,Z),
father(Y,W),
Z==W.

sister(X,Y):- female(Y),
father(X,Z),
father(Y,W),
Z==W.

OUTPUT :

```

male(peter)
true

father(chris,peter)
true

father(chris,betty)
false

grandfather(kevin,peter)
true

grandfather(jerry,peter)
true

grandmother(jerry,peter)
false

mother(chris,X)
X = betty

brother(helen,chris)
true

brother(chris,helen)
false

father(X,Y)
X = chris,
Y = peter
X = helen,
Y = peter
X = jerry,
Y = john
X = kevin,
Y = chris

mother(X,Y)
X = chris,
Y = betty
X = helen,
Y = betty
X = kevin,
Y = lisa
X = jerry,
Y = helen

grandmother(X,Y)
X = kevin,
Y = betty
X = jerry,
Y = betty

grandfather(X,Y)
X = kevin,
Y = peter
X = jerry,
Y = peter

```

```

brother(X,Y)
X = Y, Y = chris
X = helen,
Y = chris
X = Y, Y = kevin

sister(X,Y)
X = Y, Y = jerry
X = chris,
Y = helen
X = Y, Y = helen

```

RESULT :

Thus the python code is implemented successfully and output is verified