

## **EX.NO :6**

### **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(jeny,peter)
true

grandmother(jeny,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 = jeny,
Y = john
X = kevin,
Y = chris

mother(X,Y)
X = chris,
Y = betty
X = helen,
Y = betty
X = kevin,
Y = isa
X = jeny,
Y = helen

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

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

```

```

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

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

```

## **RESULT :**

**Thus the python code is implemented successfully and the output is verified.**