

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)	1	1
true		1
father(chris,peter)	2	1
true		1
father(chris,betty)	3	1
false		
grandfather(kevin,peter)	4	1
true		1
grandfather(jerry,peter)	5	1
true		1
grandmother(jerry,peter)	6	1
false		
mother(chris,X)	7	1
X = betty		
brother(helen,chris)	8	1
true		1
brother(chris,helen)	9	1
false		
father(X,Y)	10	1
X = chris,		
Y = peter		
X = helen,		
Y = peter		
X = jerry,		
Y = john		
X = kevin,		
Y = chris		
mother(X,Y)	11	1
X = chris,		
Y = betty		
X = helen,		
Y = betty		
X = kevin,		
Y = lisa		
X = jerry,		
Y = helen		

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

grandfather(X,Y)
X = kovin,
Y = peler
X = jeny,
Y = peler
```

```
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 above python code is executed successfully and output is verified.