

EX.NO**DATE_****PROLOG- FAMILY TREE****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 = 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 = jeny,
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 = jeny
X = chris,
Y = helen
X = Y, Y = helen

```

RESULT:

Thus, the code has been successfully executed, and the output has been verified successfully.