

**EX.NO:7**

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## **PROLOG- FAMILY TREE**

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

**CODE:**

```
/*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:

The screenshot displays the SWISH Prolog IDE interface. The left pane shows a Prolog program with the following code:

```
1 /*220701902*/  
2 /*FACTS :: */  
3 male(peter).  
4 male(john).  
5 male(chris).  
6 male(kevin).  
7 female(betty).  
8 female(jeny).  
9 female(lisa).  
10 female(helen).  
11 parentOf(chris, peter).  
12 parentOf(chris, betty).  
13 parentOf(helen, peter).  
14 parentOf(helen, betty).  
15 parentOf(kevin, chris).  
16 parentOf(kevin, lisa).  
17 parentOf(jeny, john).  
18 parentOf(jeny, helen).  
19 /*RULES :: */  
20 /* son, parent son, grandparent*/
```

The right pane shows the execution results for the query `parentOf(kevin, X).`. The results are as follows:

- Query: `parentOf(kevin, X).`
  - Result: `X = chris`
  - Buttons: Next, 10, 100, 1,000, Stop
- Query: `father(X, chris)`
  - Result: `X = kevin`
- Query: `sister(X, chris)`
  - Result: `false`
- Query: `?- sister(X, chris)`
  - Buttons: Examples, History, Solutions
  - Checkbox: ☐ table results
  - Button: Run!