

EX.NO:7

DATE:4/9/2024

Reg.no:220701025

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:

| | |
|---|---|
|  <code>male(peter)</code> |   |
| <code>true</code> |  |
|  <code>father(chris,peter)</code> |   |
| <code>true</code> |  |
|  <code>father(chris,betty)</code> |   |
| <code>false</code> | |
|  <code>grandfather(kevin,peter)</code> |   |
| <code>true</code> |  |
|  <code>grandfather(jenny,peter)</code> |   |
| <code>true</code> |  |
|  <code>grandmother(jenny,peter)</code> |   |
| <code>false</code> | |
|  <code>mother(chris,X)</code> |   |
| <code>X = betty</code> | |
|  <code>brother(helen,chris)</code> |   |
| <code>true</code> |  |
|  <code>brother(chris,helen)</code> |   |
| <code>false</code> | |
|  <code>father(X,Y)</code> |   |
| <code>X = chris,</code> | |
| <code>Y = peter</code> | |
| <code>X = helen,</code> | |
| <code>Y = peter</code> | |
| <code>X = jenny,</code> | |
| <code>Y = john</code> | |
| <code>X = kevin,</code> | |
| <code>Y = chris</code> | |
|  <code>mother(X,Y)</code> |   |
| <code>X = chris,</code> | |
| <code>Y = betty</code> | |
| <code>X = helen,</code> | |
| <code>Y = betty</code> | |
| <code>X = kevin,</code> | |
| <code>Y = lisa</code> | |
| <code>X = jenny,</code> | |
| <code>Y = helen</code> | |
|  <code>grandmother(X,Y)</code> |   |
| <code>X = kevin,</code> | |
| <code>Y = betty</code> | |
| <code>X = jenny,</code> | |
| <code>Y = betty</code> | |
|  <code>grandfather(X,Y)</code> |   |
| <code>X = kevin,</code> | |
| <code>Y = peter</code> | |
| <code>X = jenny,</code> | |
| <code>Y = peter</code> | |

| | |
|---|---|
|  <code>brother(X,Y)</code> |   |
| <code>X = Y, Y = chris</code> | |
| <code>X = helen,</code> | |
| <code>Y = chris</code> | |
| <code>X = Y, Y = kevin</code> | |
|  <code>sister(X,Y)</code> |   |
| <code>X = Y, Y = jenny</code> | |
| <code>X = chris,</code> | |
| <code>Y = helen</code> | |
| <code>X = Y, Y = helen</code> | |