

APT1030-B: FUNDAMENTALS OF PROGRAMMING LANGUAGES

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Family Tree Assignment on Prolog

Information provided:

% Assignment family tree on prolog

% Knowledge bases

male(michael).

male(ambrose).

male(james).

male(dustine).

male(wayne).

female(mary).

female(rose).

female(qiuteen).

female(agnes).

father(michael,ambrose).

father(ambrose,james).

father(james,dustine).

father(james,wayne).

father(james,qiuteen).

mother(mary,james).

mother(agnes,rose).

mother(rose,dustine).

mother(rose,wayne).

mother(rose,qiuteen).

is_spouse(X,Y):-father(X,Z),mother(Y,Z).

is_sibling(X,Y):-father(Z,X),father(Z,Y),X\=Y.

Input/Output:

father(X,dustine).
X = james

mother(X,dustine).
X = rose

is_spouse(X,james).
false

is_spouse(X,rose).
X = james

father(X,qiuteen).
X = james

father(X,wayne).
X = james

father(X,qiuteen).
X = james

mother(X,james).
X = mary

mother(X,rose).
X = agnes

father(X,james).
X = ambrose

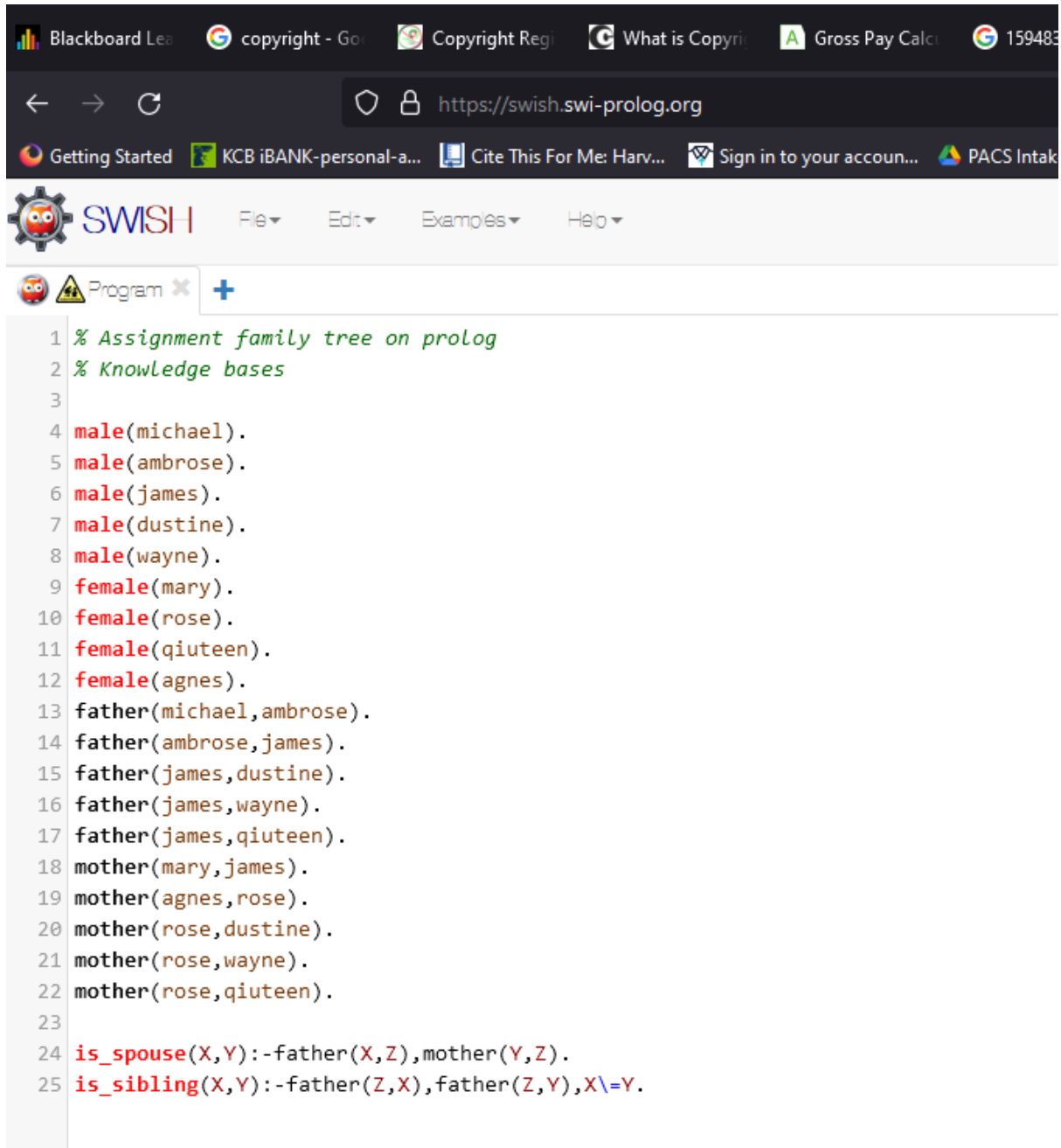
father(X,ambrose).
X = Michael

is_sibling(X,wayne).
X = dustine
X = qiuteen

is_sibling(X,dustine).
X = wayne
X = qiuteen

is_sibling(X,qiuteen).
X = dustine
X = wayne
false

Screenshots:







The screenshot shows a web browser window with the URL <https://swish.swi-prolog.org>. The browser's address bar and tabs are visible at the top. Below the browser window is the SWISH Prolog editor interface. The editor has a menu bar with 'File', 'Edit', 'Examples', and 'Help'. Below the menu bar is a toolbar with a 'Program' button and a '+' button. The main editing area contains the following Prolog code:

```
1 % Assignment family tree on prolog
2 % Knowledge bases
3
4 male(michael).
5 male(ambrose).
6 male(james).
7 male(dustine).
8 male(wayne).
9 female(mary).
10 female(rose).
11 female(qiuteen).
12 female(agnes).
13 father(michael,ambrose).
14 father(ambrose,james).
15 father(james,dustine).
16 father(james,wayne).
17 father(james,qiuteen).
18 mother(mary,james).
19 mother(agnes,rose).
20 mother(rose,dustine).
21 mother(rose,wayne).
22 mother(rose,qiuteen).
23
24 is_spouse(X,Y):-father(X,Z),mother(Y,Z).
25 is_sibling(X,Y):-father(Z,X),father(Z,Y),X\=Y.
```


83 users online

Search




 `father(X,dustine).`


X = james

 `mother(X,dustine).`


X = rose

 `is_spouse(X,james).`


false

 `is_spouse(X,rose).`


X = james

 `father(X,qiuteen).`

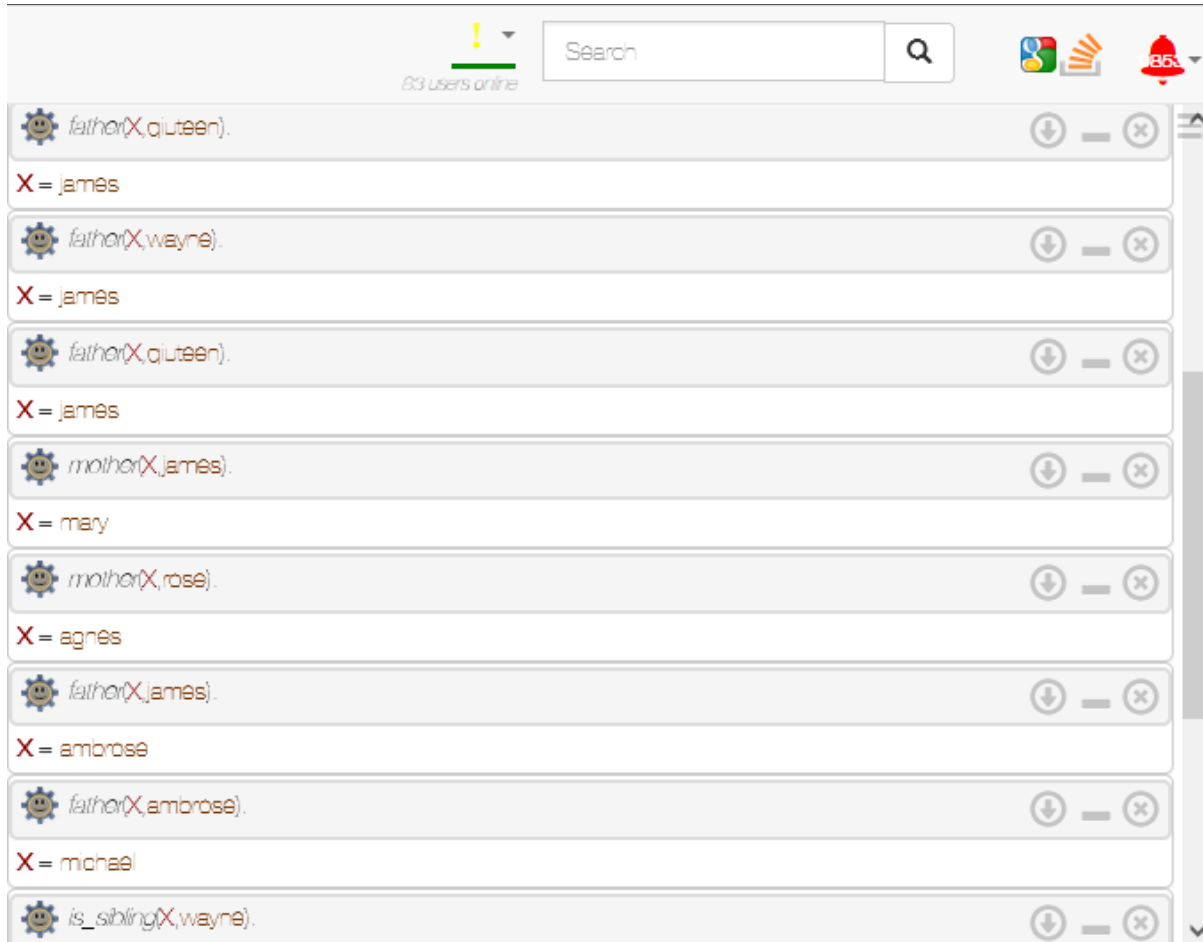
X = james

 `father(X,wayne).`

X = james

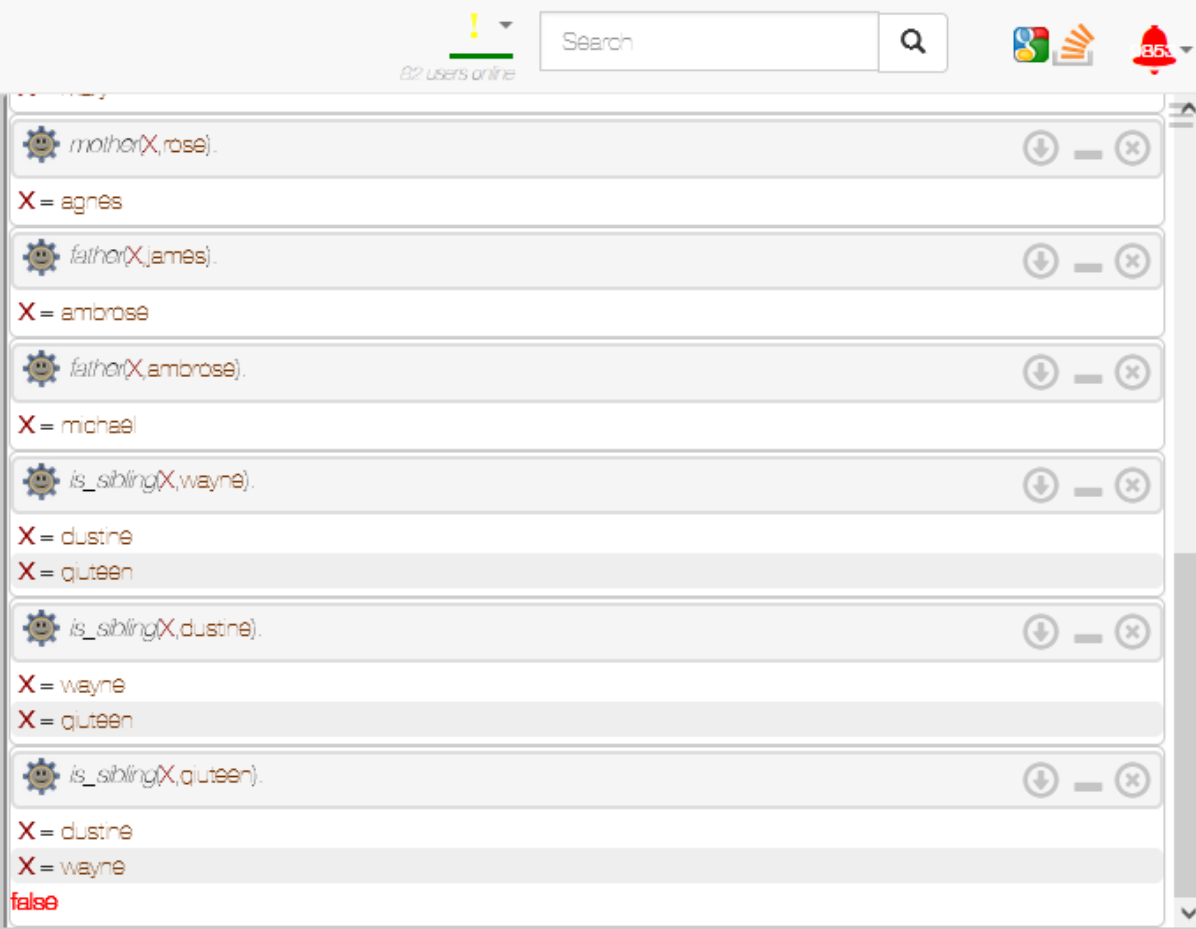
 `father(X,qiuteen).`

X = james



The screenshot shows a Prolog interpreter window with a search bar at the top and a status bar indicating 83 users online. The main area displays a list of queries and their results:

- Query: `father(X,queen).`
Result: `X = james`
- Query: `father(X,wayne).`
Result: `X = james`
- Query: `father(X,queen).`
Result: `X = james`
- Query: `mother(X,james).`
Result: `X = mary`
- Query: `mother(X,rose).`
Result: `X = agnes`
- Query: `father(X,james).`
Result: `X = ambrose`
- Query: `father(X,ambrose).`
Result: `X = michael`
- Query: `is_sibling(X,wayne).`



The screenshot shows a Prolog environment interface with a top bar containing a search box, a magnifying glass icon, and a notification bell. Below the bar, a list of queries is displayed, each with a gear icon and a close button. The queries and their results are as follows:

- Query: `mother(X,rose).`
Result: `X = agnes`
- Query: `father(X,james).`
Result: `X = ambrose`
- Query: `father(X,ambrose).`
Result: `X = michael`
- Query: `is_sibling(X,wayne).`
Results: `X = dustine`, `X = quiteen`
- Query: `is_sibling(X,dustine).`
Results: `X = wayne`, `X = quiteen`
- Query: `is_sibling(X,quiteen).`
Results: `X = dustine`, `X = wayne`

The final result shown at the bottom is `false`.