Lab 1

Use a text editor to write the following prolog program and save it as likes.pl in some folder where you intend to keep your prolog code. Then start SWI-Prolog and select the menu **File | Consult** to load in the program you have just written.

```
man(jim).
man(mary).
mortal(X) :- man(X).
likes(X,A) :- man(X), dog(A).

dog(rex).
dog(lassie).
```

In the Prolog interpreter try the following:

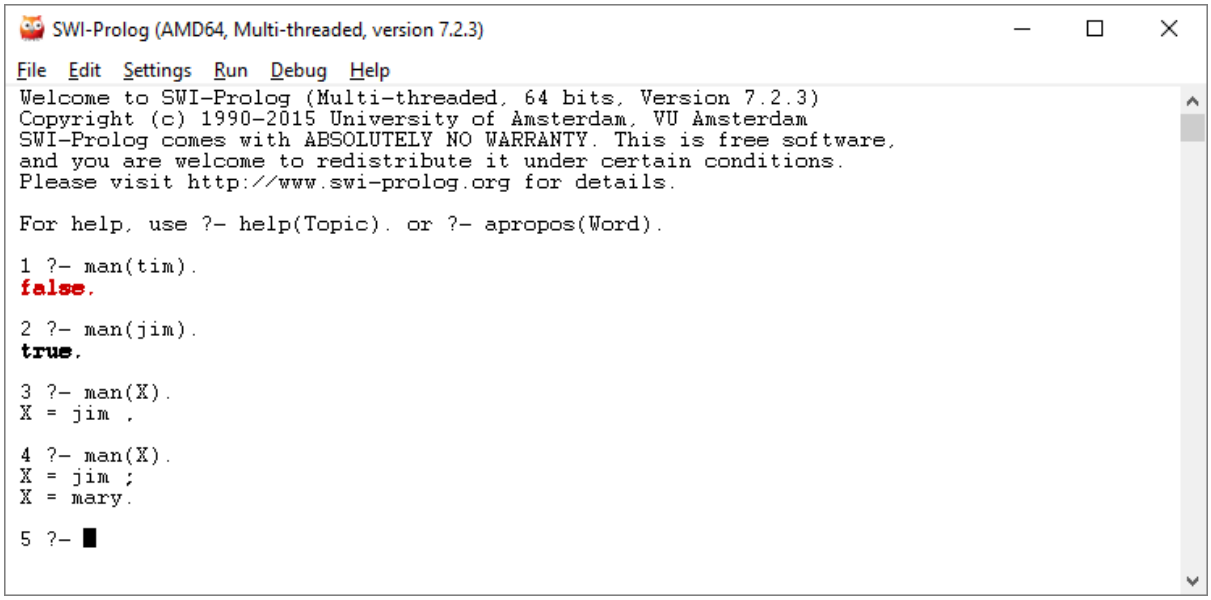
?- man(tim).

?- man(jim).

?- man(X). (and press enter after first value for X)

?- man(X). (and press ; after first value for X, should show more than one option for X)

These interactions will look like:



One assertions which exist within the Prolog database are deemed to be true, otherwise they are false. Referred to as the “closed world view”.

Next try some assertions which involve the 2 rules (Horn clauses):

?- mortal(sue).

?- mortal(mary).

?- mortal(N).

?- likes(tim, rex).

?- likes (X, rex).

?- likes(X, y).

?- likes(X,Y).

These interactions will look like:

```
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5 ?- mortal(sue).
false.

6 ?- mortal(mary).
true.

7 ?- mortal(N).
N = jim ;
N = mary.

8 ?- likes(tim, rex).
false.

9 ?- likes(X, rex).
X = jim ;
X = mary.

10 ?- likes(X,y).
false.

11 ?- likes(X, Y).
X = jim,
Y = rex ;
X = jim,
Y = lassie ;
X = mary,
Y = rex ;
X = mary,
Y = lassie.

12 ?-
```

Exercisees

Ex 1

Express in proglog the assertion that if X is a cat and Y is a dog, then X hates Y and Y chases X. Create a few cat facts and test this knowledge rule.

Ex 2

Write the following code and save it as lines.pl and then load it into SWI-Prolog.

lines.pl

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p1.pl lines.pl

```
point(1,2).
point(3,2).
point(3,3).

segment(point(1,2), point(3,2)).
segment(point(1,2), point(3,3)).

horizontal(S) :- S = segment(P1, P2),
                 P1 = point(X, Y),
                 P2 = point(Z, Y).
```

user:horizontal/1: (loaded) static, 1 clause, number_of_rules(1) Line: 8

Then try:

?- horizontal(segment(point(1,2), point(3,2))).

?- horizontal(segment(point(1,2), point(3,3))).

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```
13 ?- horizontal(segment(point(1,2), point(3,2))).
true.

14 ?- horizontal(segment(point(1,2), point(3,3))).
false.

15 ?-
```

Ex 3

Write a rule which decides if a line segment is vertical or not.