Lab Task (Week) 7: Getting started with Prolog

SWI Prolog is available in the labs. To install: `https://www.swi-prolog.org/`. Note if you have difficulties with your prolog installation, there is also an online version of swi-prolog available. (To the right of the download link.)

The aim of this lab sheet is that everyone gets started with Prolog this week. (This would be a good basis for the lectures next week.) Many of the questions can be answered by simply running Prolog, but you need to be able to explain the answers. Enjoy!

1. i) Download the file `kb1.pl`, containing:

```
woman(mia).
woman(jody).
woman(yolanda).
playsAirGuitar(jody).
party.
```

Load it into Prolog (by either clicking on the file, or starting prolog and then goto file and choose consult). as try some queries (such as `woman(mia).`) as given in the lecture. Who is a woman, and who plays the air guitar?

ii) Add the rule `playsAirGuitar(X) :- woman(X)` to kb1. `Who plays now the air guitar?`

2. In general: give two different ways of how to name variables. (They differ in the first character).

Which of the following are atoms, which variables, which are neither? Test your answerswith the `atom` command in Prolog.

```
marcellus, TEST, _TEST, tEST, 'TEST', my test, 'my test', test123, Test123
```

3. Suppose we are working with the following knowledge base:

```
wizard(ron).
hasWand(harry).
quidditchPlayer(harry).
wizard(X):- hasBroom(X), hasWand(X).
hasBroom(X):- quidditchPlayer(X).
witch(hermione).
```

How does Prolog respond to the following queries?

```
?- wizard(ron).
?- witch(ron).
?- wizard(hermione).
?- witch(hermione).
?- wizard(harry).
?- wizard(Y).
?- witch(Y).
```

Additonal exercise. (Optional but highly recommended.) Formalisation task in Prolog: how would you represent the following in Prolog: It is part of the exercise to decide which predicates (with arity 1 or 2, i.e. with one or two arguments) are appropriate to express these statements.

```
Butch is a killer.
Mia and Marsellus are married.
Mia loves everyone who is a good dancer.
Marsellus kills everyone who gives Mia a footmassage.
Vicent gives Mia a footmassage.
Jules eats anything that is nutritious or tasty.
The apple is nutrious.
The quiche is tasty.
```