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CSC 520
Homework 3

------- Project Description -------

Implement a database using Q3.1 taxonomy graph to verify Relations and Properties facts that can be derived from database. This assignment is an introduction to the Prolog environment and associated Prolog behaviours with respect to recursion and inheritance.

------- Instructions -------

In directory that contains Prolog file:

1. ?- [hw3]. make.
    a. this will compile Prolog file and load database
2. ?- rel(Who, Rel, What).
    a. this will derive all facts related to Relations
3. ?- hasProp(Who, Property, Value).
    a. this will derive all facts related to Properties

------- Source Code Files -------

hw3.pl
readme.pdf
mrpatel5_Michael.pdf
q2_plan_graph.PNG
q2_with_mutex.PNG
q2_soln_path.PNG
q3_taxonomy_graph.PNG

------- Environment -------

SWI-Prolog version 7.6.4
Windows 10

------- Example 1 -------

In Prolog terminal:

1. ?- rel(Who, Rel, What).

Expected Output

```
?- rel(Who, Rel, What).
Who = humans,
Rel = ako,
What = creatures ;
Who = birds,
Rel = ako,
What = creatures ;
Who = man,
Rel = ako,
What = humans ;
Who = turkey,
Rel = ako,
What = birds ;
Who = louis,
Rel = isa,
What = man ;
Who = albert,
Rel = isa,
What = man ;
Who = frank,
Rel = isa,
What = turkey ;
Who = man,
Rel = ako,
What = creatures ;
Who = turkey,
Rel = ako,
What = creatures ;
Who = louis,
Rel = isa,
What = humans ;
Who = louis,
Rel = isa,
What = creatures ;
Who = albert,
Rel = isa,
What = humans ;
Who = albert,
Rel = isa,
What = creatures ;
Who = frank,
Rel = isa,
What = birds ;
Who = frank,
Rel = isa,
What = creatures ;
```

------- Example 2 -------

In Prolog terminal:

1. ?- hasProp(Who, Property, Value).

Expected Output

```
?- hasProp(Who, Property, Value
Who = humans,
Property = legs,
Value = two ;
Who = louis,
Property = legs,
Value = one ;
Who = birds,
Property = fly,
Value = yes ;
Who = turkey,
Property = fly,
Value = no ;
Who = albert,
Property = legs,
Value = two ;
Who = frank,
Property = fly,
Value = no ;
Who = man,
Property = legs,
Value = two ;
```

------- Example 3 -------

In Prolog terminal:

1. ?- rel(frank, Rel, Group).

Expected Output

```
?- rel(frank, Rel, Group).
Rel = isa,
Group = turkey ;
Rel = isa,
Group = birds ;
Rel = isa,
Group = creatures ;
```