AI EXP 8

IMPLEMENTATION OF KNOWLEDGE REPRESENTATION SCHEMES – USE CASES

Submitted By

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AIM:

To Implementation of knowledge representation schemes - use cases

CODE

```
go :- hypothesize(Animal),
write(&#39;I guess that the animal is: &#39;),
write(Animal),
nl,
undo.
/* hypotheses to be tested */ hypothesize(cheetah) :-
cheetah, !. hypothesize(tiger) :- tiger, !.
hypothesize(giraffe) :- giraffe, !. hypothesize(zebra)
:- zebra, !. hypothesize(ostrich) :- ostrich, !.
hypothesize(penguin) :- penguin, !.
hypothesize(albatross) :- albatross, !.
hypothesize(unknown). /* no diagnosis */
/* animal identification rules */
cheetah :- mammal,
```

```
carnivore,
verify(has_tawny_color),
verify(has_dark_spots). tiger :-
mammal, carnivore,
verify(has_tawny_color),
verify(has_black_stripes).
giraffe :- ungulate,
verify(has_long_neck),
verify(has_long_legs). zebra :-
ungulate,
verify(has_black_stripes).
ostrich :- bird,
verify(does_not_fly),
verify(has_long_neck).
penguin :- bird,
verify(does_not_fly),
verify(swims),
verify(is_black_and_white).albatross
:- bird,
verify(appears_in_story_Ancient_Mariner),
verify(flys_well).
/* classification rules */ mammal
:- verify(has_hair), !.
```

```
mammal :- verify(gives_milk).bird
:- verify(has_feathers), !.bird :-
verify(flys), verify(lays_eggs).
carnivore :- verify(eats_meat), !. carnivore :-
verify(has_pointed_teeth),verify(has_claws),
verify(has_forward_eyes).
ungulate :- mammal,

verify(has_hooves),      !.
ungulate   :-   mammal,
verify(chews_cud).
/* how to ask questions */
ask(Question) :-
write(&#39;Does the animal have the following attribute: &#39;),write(Question),
write(&#39;? &#39;),
read(Response),
nl,
( (Response == yes ; Response == y)
-&gt; assert(yes(Question)) ;
assert(no(Question)), fail).
```

:- dynamic yes/1,no/1.

/* How to verify something */

verify(S) :-

(yes(S)

->

true ;

(no(S)

-> fail

;

ask(S))).

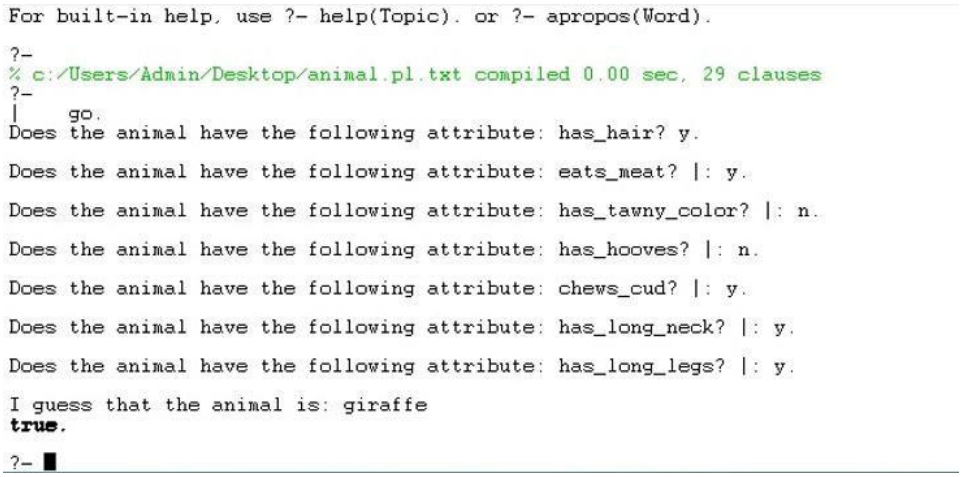
/* undo all yes/no assertions */undo

:- retract(yes(_)),fail. undo :-

retract(no(_)),fail. undo.

IMPLEMENTATION:

```
?- go.
Does the animal have the following attribute: has_hair? n.

Does the animal have the following attribute: gives_milk? |: y.

Does the animal have the following attribute: eats_meat? |: y.

Does the animal have the following attribute: has_tawny_color? |: n.

Does the animal have the following attribute: has_hooves? |: y.

Does the animal have the following attribute: has_long_neck? |: n.

Does the animal have the following attribute: has_black_stripes? |: n.

Does the animal have the following attribute: has_feathers? |: y.

Does the animal have the following attribute: does_not_fly? |: n.

Does the animal have the following attribute: appears_in_story_Ancient_Mariner? Does the animal
 have the following attribute: appears_in_story_Ancient_Mariner?y
|: .

Does the animal have the following attribute: flys_well? |: y.

I guess that the animal is: albatross
true.

?-
```



RESULT:

Therefore, the implementation of knowledge representation schemes - use caseshas been completed successfully.