

VISHWAKARMA INSTITUTE OF TECHNOLOGY
COMPUTER ENGINEERING

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Roll No: 15

Subject: Artificial Intelligence (AI)

LAB ASSIGNMENT NO – 6

Implementation of an Expert system using **PROLOG**.

Implementation of an expert system using Prolog means creating a knowledge-based system that uses rules, facts, and inference mechanisms to make decisions or provide expert-level advice in a specific domain.

It allows you to capture complex relationships and perform automated reasoning, making it a powerful tool for creating expert systems.

Code:

```
% Define facts about animals and their habitats.
habitat(dog, land).
habitat(cat, land).
habitat(human, land).
habitat(snake, land).
habitat(bird, land).
habitat(fish, water).
habitat(dolphin, water).
habitat(eagle, air).
habitat(bat, air).
```

```
% Define rules to determine the category of an animal.
land_animal(X) :-
    habitat(X, land).

water_animal(X) :-
    habitat(X, water).

flying_animal(X) :-
    habitat(X, air).

% Define a predicate for user interaction.
identify_animal_category :-
    write('Welcome to the Animal Classifier!'), nl,
    write('Please enter the name of an animal to identify its
category. '), nl,
    write('Animal name: '),
    read(Animal),
    classify_animal(Animal).

% Define a rule to identify and classify an animal.
classify_animal(Animal) :-
    land_animal(Animal),
    write(Animal), write(' is a land animal. '), nl.

classify_animal(Animal) :-
    water_animal(Animal),
    write(Animal), write(' is a water animal. '), nl.

classify_animal(Animal) :-
    flying_animal(Animal),
    write(Animal), write(' is a flying animal. '), nl.
```

```
classify_animal(Animal) :-  
    write(Animal), write(' is not a known animal.'), nl.  
  
% Main loop.  
main :-  
    identify_animal_category,  
    write('To continue, enter another animal name or type "quit" to  
exit.'), nl,  
    read(Input),  
    (Input == quit) -> halt  
    ; main.  
  
% Example interaction:  
% Welcome to the Animal Classifier!  
% Please enter the name of an animal to identify its category.  
% Animal name: cat  
% cat is a land animal.  
%  
% To continue, enter another animal name or type "quit" to exit.  
% Animal name: dolphin  
% dolphin is a water animal.  
%  
% To continue, enter another animal name or type "quit" to exit.  
% quit
```

Output:

```
Welcome to the Animal Classifier!  
Please enter the name of an animal to identify its category.  
Animal name: cat  
cat is a land animal.  
  
To continue, enter another animal name or type "quit" to exit.  
Animal name: dolphin  
dolphin is a water animal.  
  
To continue, enter another animal name or type "quit" to exit.  
quit
```