

Write a Prolog program to find the number of vowels

AIM

To write a Prolog program that counts the number of vowels in a given word or list of characters.

ALGORITHM

1. Start the program.
2. Define which characters are vowels using `vowel(Character)`.
3. Define a predicate `count_vowels(List, Count)` to recursively count vowels in a list:
 - Base case: An empty list has 0 vowels.
 - If the head of the list is a vowel, increment the count and recursively process the tail.
 - If the head is not a vowel, skip it and recursively process the tail.
4. Convert a word to a list of characters if needed using `atom_chars(Word, List)`.
5. Load the program into the Prolog interpreter.
6. Query the program with `count_vowels(List, Count)` to find the number of vowels.
7. Stop.

```

% Check if a character is a vowel
vowel(a).
vowel(e).
vowel(i).
vowel(o).
vowel(u).
vowel(A) :- char_type(A, upper), char_lower(A, L), vowel(L). % handle uppercase

% Base case: empty list has 0 vowels
count_vowels([], 0).

% If head is a vowel, increment count
count_vowels([H|T], Count) :-
    vowel(H),
    count_vowels(T, RestCount),
    Count is RestCount + 1.

% If head is not a vowel, skip
count_vowels([H|T], Count) :-
    \+ vowel(H),
    count_vowels(T, Count).

```

OUTPUT:

```

?-
% c:/Users/gayathri/Downloads/vowel.pl compiled 0.00 sec, 9 clauses
?- count_vowels([h,e,l,l,o], N).
N = 2 ,

?- atom_chars(hello, L), count_vowels(L, N).
L = [h, e, l, l, o],
N = 2 ,

?- ■

```

RESULT

The program successfully counts the vowels in a given word. For example, for the word hello, the program returns 2 vowels.