Term - Work 04.

Problem Statement

Write a PROLOG for menu Driven for member, concatination. and Delete and Permutation. functions.

Theory :

In Prolog a menu-driven Programs can be implimented using a Combination of facts & rules and predicates items generat using g how you can fo structured a menu-driven Programs in prolog :

1 Define the menu option :

Create facts to represent Each menu option, the facts structured represent the options any associated Parameter on argument.

2 Implement menu handling rules :

— write rules that define the behaviour for menu option

→ Each rule should have a head that matches the menu option & a body that specifies the auction to be performed

3. Implement the main menu loop :

→ Write a predicate that display the menu option & prompts the user for input.

→ Repeate the main menu loop until ~~to~~ the user. Choose to Exit the Program.

PROGRAM.

```
% Helper predicates.
Concatenate ([],L,L).
Concatenate (H|T, L, [H|R]):- concate (T,L,R). .

add-Element (X, L, [X|L]).

delete- Element (_,[],[]).
delete_Element (X, [X|T], T).
delete- Element (X, [H|T], [H|R]):- X\=H,
                        delete-Element (X,T,R).

permute ([],[]).
permute ([H|T], R):- permute (T,X), select (H,R,X).

list-member (X, [X|_]).
list-member (X, [_|T]):- list_member (X,T).

% menu - driven function
menu :-
     write('MENU'), nl,
    write ('1, Concatenate list'),nl,
    write ('2, Add Element'),nl
    write ('3, Delete Element'),nl,
    write ('4, Permute list'),nl,
    write ('5, Check member'),nl,
    write ('6, Quit'),nl,
    write ('Enter the number of your choice :')
      read (Choice),
Process (choice).

Process (1):-
    write ('Enter first list:'),
    read (L1),
    write ('Enter Second list:'),
    read (L2),
    Concadenate (L1, L2, Result),
    write ('Concatenated list:'),
    write (Result), nl.
    menu.

Process (2):-
      write ('Enter an Element:'),
      read (X),
      write ('Enter a list:'),
       read (L),
       add. Element (X, L, Result),
       write ('List after adding Element:'),
       write (Result), nl.
       menu.

Process (3):-
       write ('Enter an Element:'),.
       read (X),
       write ('Enter a list:'),
       read (L),
        dalet- Element (x, L, Result),
        write ('List after deleting Element:'),
        write (Result), nl,
         menu.
```

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Process(4):-
        write('Enter a digit:'),
        read(L),
        findall(X, permute(L,X), Results),
        write('Permulations:'),nl,
        maplist(writeln, Results),
        menu.
Process(5):-
        write("LIST MEMBER'),nl,
        read(X),
        read(L),
        list member(X,L),
        menu.
 Process(6):-
          write('LIST MEMBER'),nl,
          read(X),
           read(L),
           listmember(X,L),
           menu.
          write('Goodbye!'),nl.

 main:-
      menu.
```

Out put

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   MENU
1.  Concadenate
2.  Add Element
3.  Delete Element
4.  Permute list
5.   Check number
6.     Quit

 Enter the number of your choice : 1

 Enter the first list :  [1,2,3,4,5]
 Enter the second list : [5,6,7,8]
 Concatinated list : [1,2,3,4,5,6,7,8].

 Enter the first number of your choice : 2.
  Enter    an    Element : 2.
   Enter an    alist : 4,5,6.
   list after adding  Element :  [4,5,6,2]

  Enter the   number of your choice  : 3
   Enter  an   Element  : 5
   Enter  a  list :   4,5,6,2
   List after  deleting   Element :  [4,6,2].
```