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Practical 6:

2CS702 - Artificial Intelligence

Name: Shrey Viradiya

Roll No: 18BCE259

Aim:

Write a PROLOG program on lists i. To find whether given element is a member of list

ii. Inserting an element at a) beginning b) end c) desired position

Code:

```
%is present in list

list_member(X,[X|_]):-!.

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


%find length

list_length([],0):-!.

list_length(_|T,N):-list_length(T,N1), N is N1+1.


%concatenate two lists

list_concat([],L,L):-!.

list_concat([X1|L1],L2,[X1|L3]):-list_concat(L1,L2,L3).


%delete an element from list

list_delete(X,[X|L1],L1):-!.

list_delete(X,[Y|L2],[Y|L1]):-list_delete(X,L2,L1).


%insert at the beginning

insert_start(X,T,[X|T]).


%insert at the end

insert_end(X,T,L):-list_concat(T,[X],L).


%incser at position
```

```
insert_at(X,1,L,[X|L]):-!.
```

```
insert_at(X,P,[Y|L],[Y|L1]):- P1 is P-1,insert_at(X,P1,L,L1).
```

Output:

```
Welcome to SWI-Prolog (threaded, 64 bits, version 8.4.1)
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For online help and background, visit https://www.swi-prolog.org
For built-in help, use ?- help(Topic). or ?- apropos(Word).

1 ?- [prac6].
true.

2 ?- list_member(a,[a,b,c]).
ERROR: Syntax error: Operator expected
ERROR: list_membe
ERROR: ** here **
ERROR: r[a,[a,b,c]) .
2 ?- list_member(a,[a,b,c]).
true.

3 ?- list_length([a,b,c],N).
N = 3.

4 ?- list_concat([a,b],[c,d],X).
X = [a, b, c, d].

5 ?- list_delete(a,[a,b,c],X).
X = [b, c].

6 ?- insert_start(a,[b,c],X).
X = [a, b, c].

7 ?- insert_end(c,[a,b],X).
X = [a, b, c].

8 ?- insert_at([a,2,[b,c,d],X).
ERROR: Syntax error: Illegal start of term
ERROR: insert_at([a,2,[b,c,d],
ERROR: ** here **
ERROR: X) .
8 ?- insert_at(a,2,[b,c,d],X).
X = [b, a, c, d].

9 ?- █
```