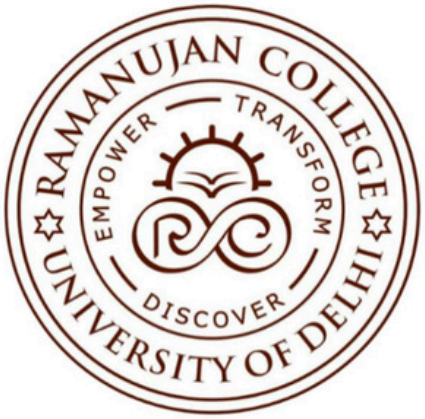
ASSIGNMENT ARTIFICIAL INTELLIGENCE

RAMANUJAN COLLEGE



UNIVERSITY OF DELHI

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CLASS : BSC(H) COMPUTER SCIENCE

SEM- 3

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RAMANUJAN COLLEGE,

UNIVERSITY OF DELHI

1. Write a PROLOG program to implement the family tree and demonstrate the family relationship.

prolog practicals.pl

File Edit Browse Compile Prolog Pce Help

prolog practicals.pl

```
% ----- Facts -----

% Gender
male(john).
male(mike).
male(ryan).
female(lisa).
female(emma).

parent(john, mike).
parent(lisa, mike).
parent(mike, ryan).
parent(emma, ryan).

% Rules
father(F, C) :-male(F),parent(F, C).
mother(M, C) :-female(M),parent(M, C).
grandparent(GP, GC) :- parent(GP, P),parent(P, GC).
sibling(A, B) :-parent(P, A),parent(P, B),A \= B.
brother(B, X) :-sibling(B, X),male(B).
sister(S, X) :-sibling(S, X),female(S).

% Ancestor (recursive)
ancestor(A, X) :-
    parent(A, X).
ancestor(A, X) :-
    parent(P, X),
    ancestor(A, P).
```

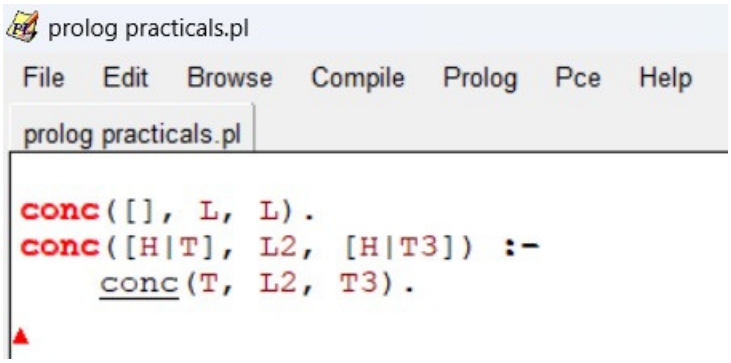
Output:

```
?- father(F, mike).
F = john .

?- mother(M, ryan).
M = emma.

?- sibling(mike, emma).
false.
```

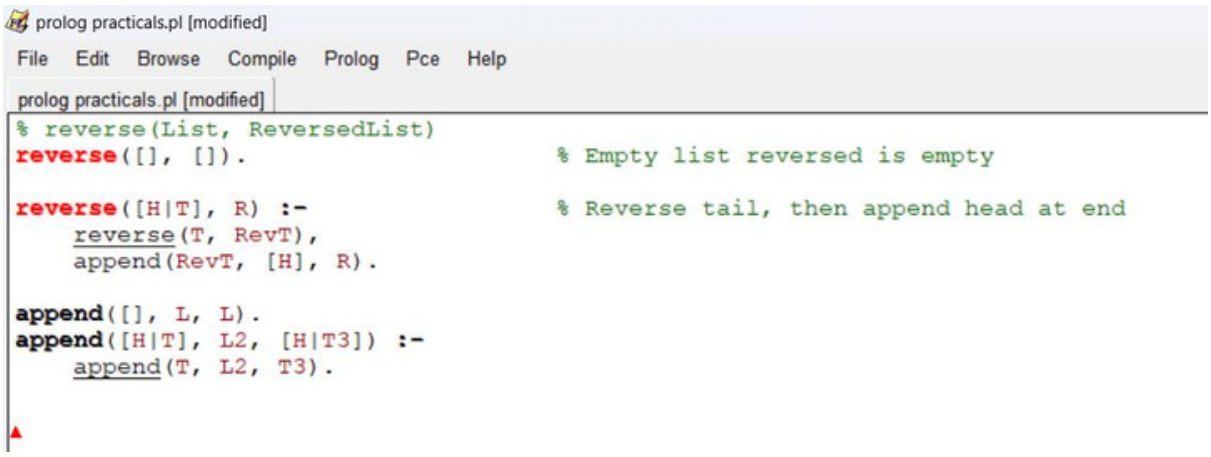
2. Write a PROLOG program to implement conc(L1, L2, L3) where L2 is the list to be appended with L1 to get the resulted list L3.




```
Action (h for help) ? abort
% c:/Users/ARYAN/OneDrive/Documents/Prolog/prolog practicals.pl compiled 0.00 sec, 0 clauses
?- conc([1,2], [3,4], L).
% Execution Aborted
?- conc([1,2], [3,4], L).
L = [1, 2, 3, 4].

?-
```

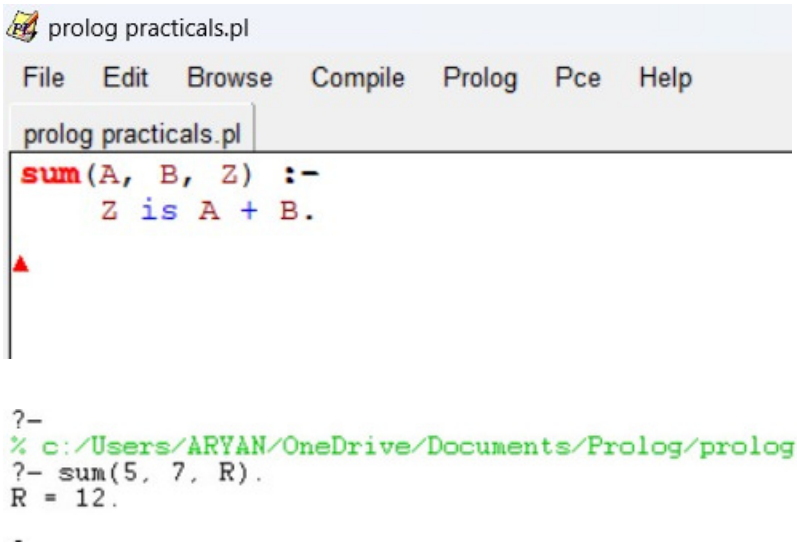
3. Write a PROLOG program to implement reverse(L, R) where List L is original and List R is reversed list.



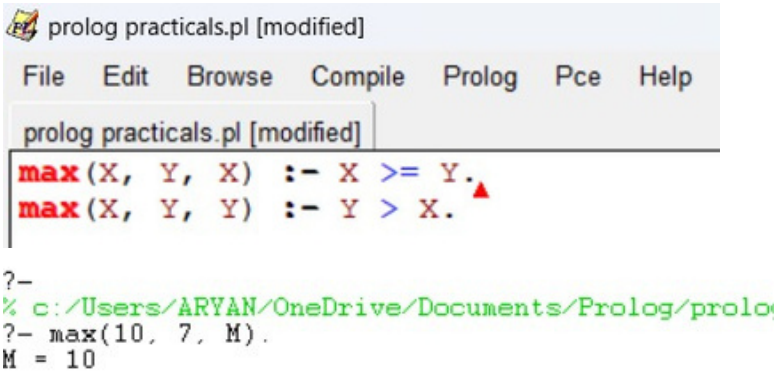

```
?-
% c:/Users/ARYAN/OneDrive/Documents/Prolog/prolog practicals.pl compiled 0.00 sec, 0 clauses
?- reverse([1,2,3,4], R).
R = [4, 3, 2, 1].

?-
```

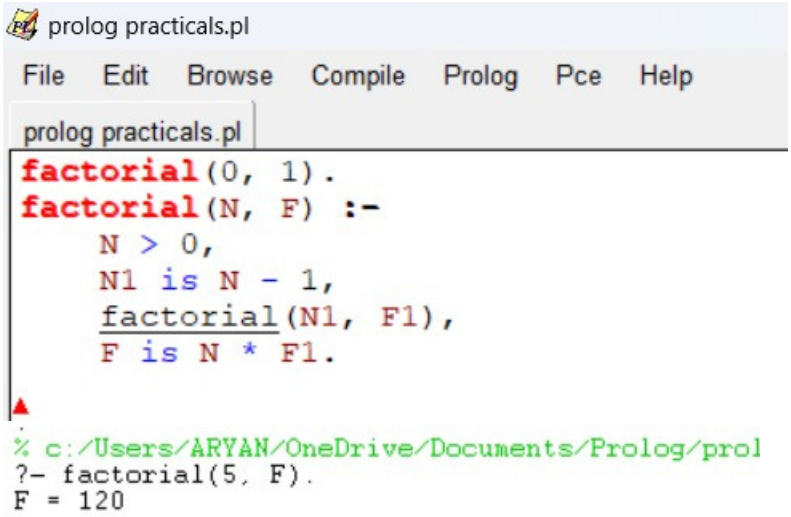
4. Write a PROLOG program to calculate the sum of two numbers.



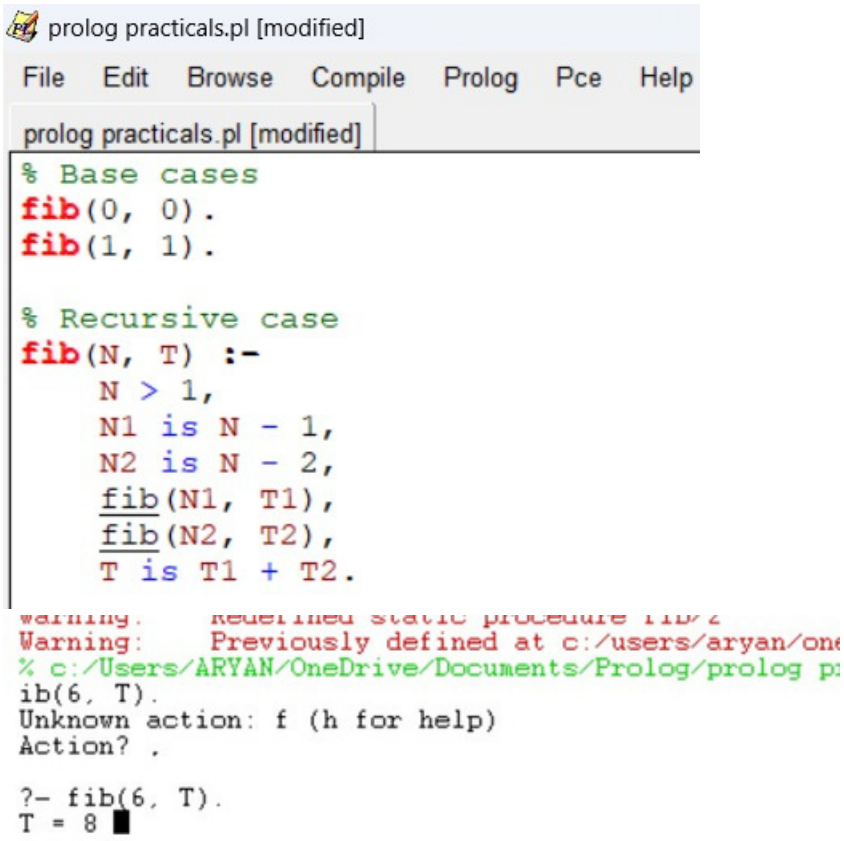
5. Write a PROLOG program to implement max(X, Y, M) so that Mis the maximum of two numbers X and Y.



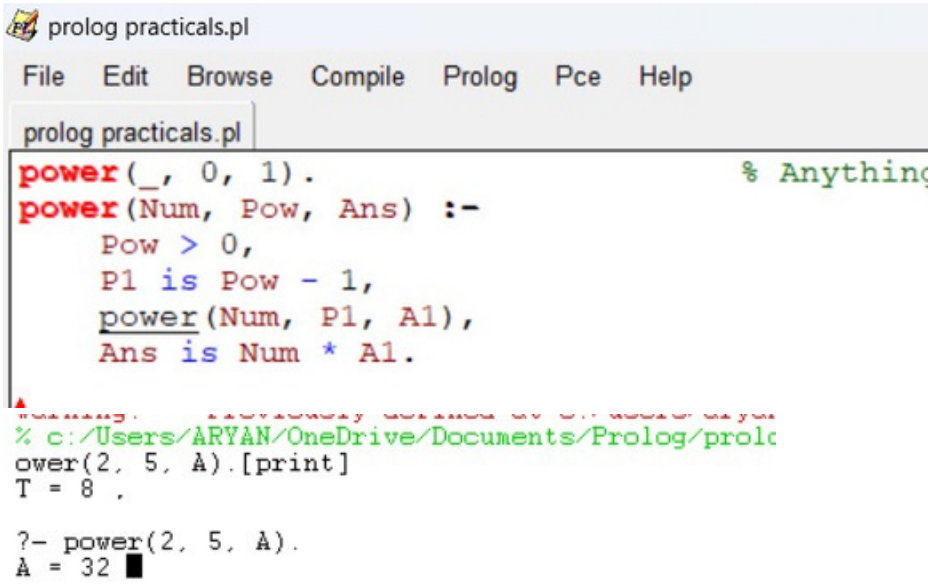
6. Write a program in PROLOG to implement factorial (N, F) where F represents the factorial of a number N.



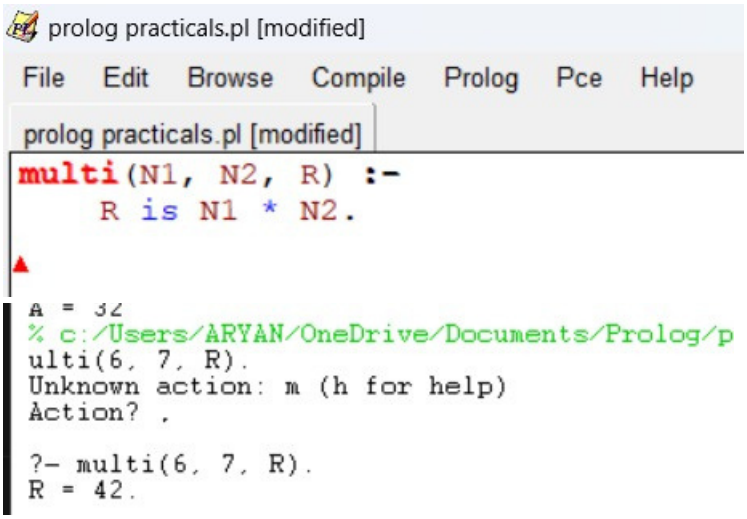
7. Write a program in PROLOG to implement generate_fib(N,T) where T represents the Nth term of the Fibonacci series.



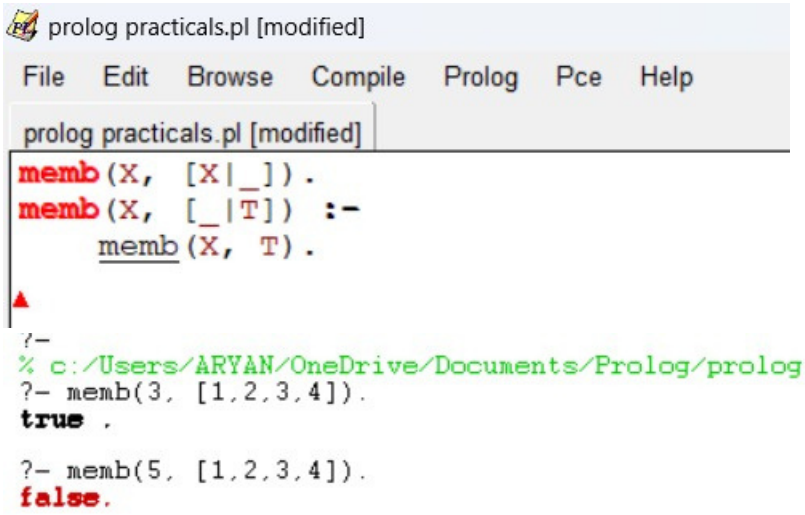
8. Write a PROLOG program to implement power (Num, Pow, Ans):where Num is raised to the power Pow to get Ans.



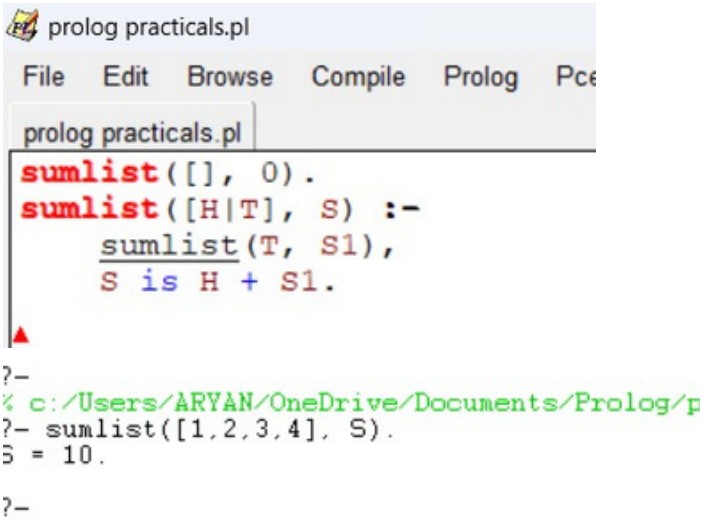
9. PROLOG program to implement multi (N1, N2, R) : where N1 and N2 denotes the numbers to be multiplied and R represents the result.



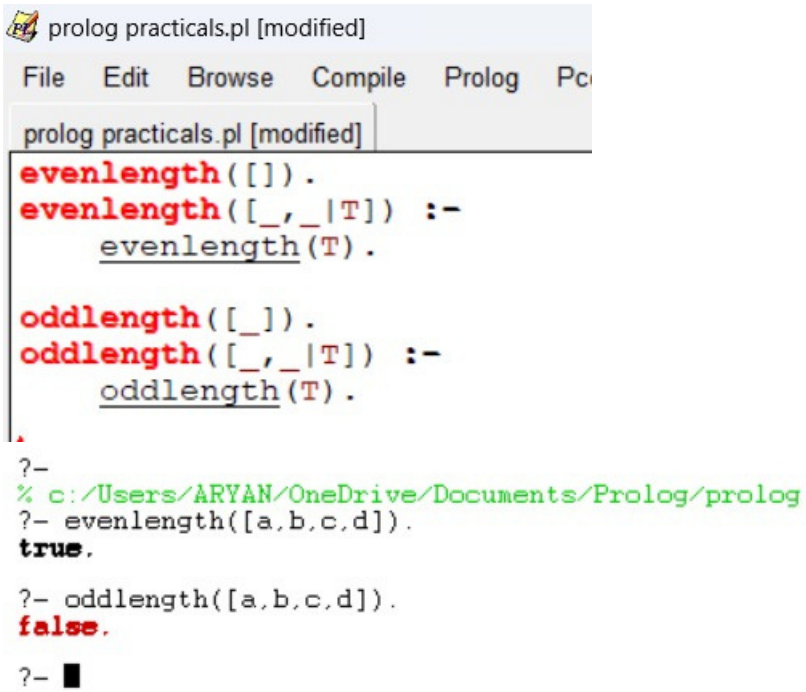
10. Write a PROLOG program to implement memb(X, L): tocheck whether X is a member of L or not.



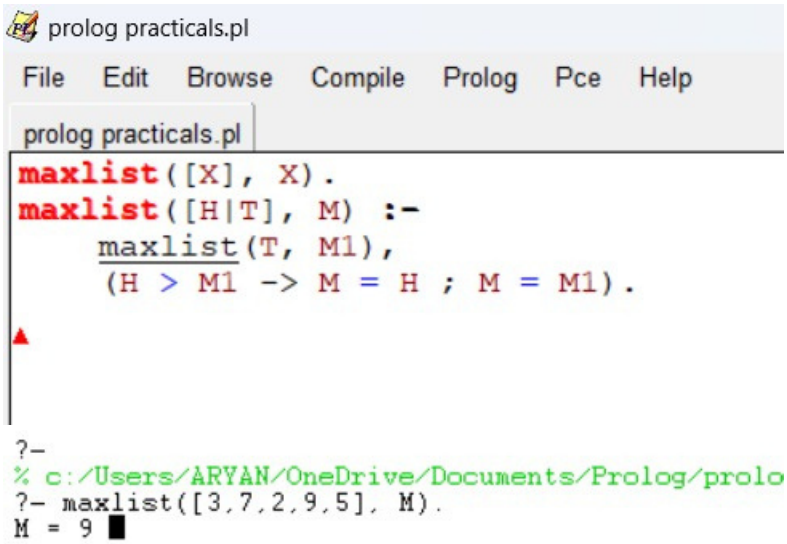
11. Write a PROLOG program to implement sumlist(L, S) so that Sisthe sum of a given list L.



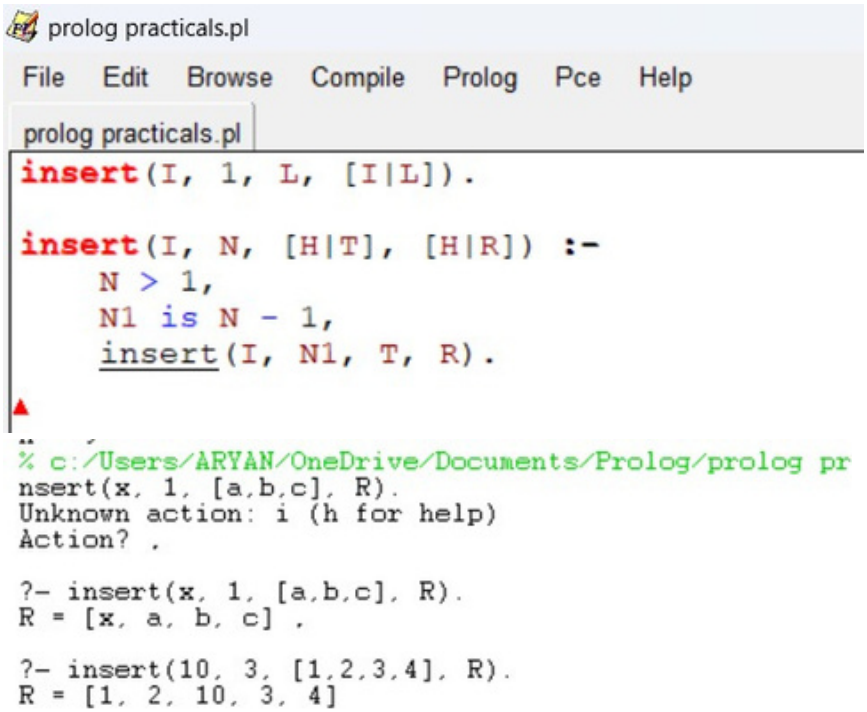
12. Write a PROLOG program to implement two predicates evenlength(List) and oddlength(List) so that they are true if their argument is a list of even or odd length respectively



13. Write a PROLOG program to implement maxlist(L, M) so that Mis the maximum number in the list.



14. Write a PROLOG program to implement insert(I, N, L, R) that inserts an item I into Nth position of list L to generate a list R.



15. Write a PROLOG program to implement delete(N, L, R) that removes the element on Nth position from a list L to generate a list R.