EXPERIMENT-30

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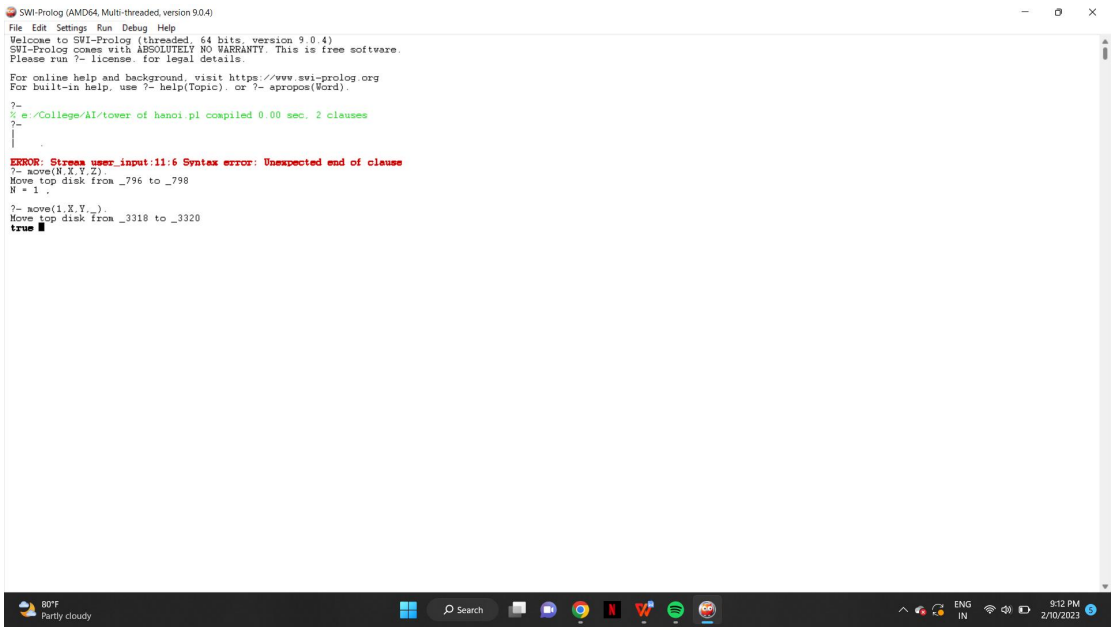
Course: CSA1789 Artificial Intelligence

Q) Write a Prolog Program to implement Towers of Hanoi.

```
% move(N,X,Y,Z) - move N disks from peg X to peg Y, with peg Z being the
%                 auxilliary peg
%
% Strategy:
% Base Case: One disc - To transfer a stack consisting of 1 disc from
%    peg X to peg Y, simply move that disc from X to Y
% Recursive Case: To transfer n discs from X to Y, do the following:
% Transfer the first n-1 discs to some other peg X
%        Move the last disc on X to Y
%         Transfer the n-1 discs from X to peg Y

    move(1,X,Y,_) :-
        write('Move top disk from '),
        write(X),
        write(' to '),
        write(Y),
nl.
    move(N,X,Y,Z) :-
        N>1,
        M is N-1,
        move(M,X,Z,Y),
        move(1,X,Y,_),
        move(M,Z,Y,X).
```

OUTPUT:


SWI-Prolog (AMD64, Multi-threaded, version 9.0.4)
File Edit Settings Run Debug Help
Welcome to SWI-Prolog (threaded, 64 bits, version 9.0.4)
SWI-Prolog comes with ABSOLUTELY NO WARRANTY. This is free software.
Please run ?- license. for legal details.
For online help and background, visit https://www.swi-prolog.org
For built-in help, use ?- help(Topic). or ?- apropos(Word).
?-
% e:/College/AI/tower of hanoi.pl compiled 0.00 sec, 2 clauses
?-
ERROR: Stream user_input:11:6 Syntax error: Unexpected end of clause
?- move(N,X,Y,Z).
Move top disk from _796 to _798
N = 1 ;
?- move(1,X,Y,_).
Move top disk from _3318 to _3320
true
80°F
Partly cloudy
Search
ENG
IN
9:12 PM
2/10/2023