

## PROGRAM 25

### MONKEY BANANA PROBLEM

CODE:

% Initial state: monkey is at point (1, 1), banana is at point (4, 4).

% The grid is represented as (Row, Column).

% move(State1, Move, State2): Define possible moves and their effects.

move(state(Monkey, on\_floor, Box, Has\_not), grasp, state(Monkey, on\_floor, Box, Has)) :-

    Monkey = (X, Y),

    Banana = (4, 4),

    Monkey \= Banana,

    Monkey \= Box.

move(state(Monkey, on\_box, Box, Has\_not), grasp, state(Monkey, on\_box, Box, Has)) :-

    Monkey = Banana.

move(state(X, on\_floor, X, Has\_not), climb, state(X, on\_box, X, Has\_not)).

```
move(state(X, on_box, X, Has_not), push(X, Y), state(Y,  
on_box, Y, Has_not)) :-
```

```
    not(Y = Banana),
```

```
    not(Y = (4,4)).
```

```
% Define the path from initial state to the goal state.
```

```
path(state(_, _, _, Has), _, []) :-
```

```
    Has = has.
```

```
path(State1, History, [Move | OtherMoves]) :-
```

```
    move(State1, Move, State2),
```

```
    not(member(State2, History)),
```

```
    path(State2, [State2 | History], OtherMoves).
```

```
% Solve the problem and output the solution.
```

```
solve :-
```

```
    InitialState = state((1,1), on_floor, (1,1), has_not),
```

```
    path(InitialState, [InitialState], Moves),
```

```
    print_moves(Moves).
```

```
% Print the sequence of moves.
```

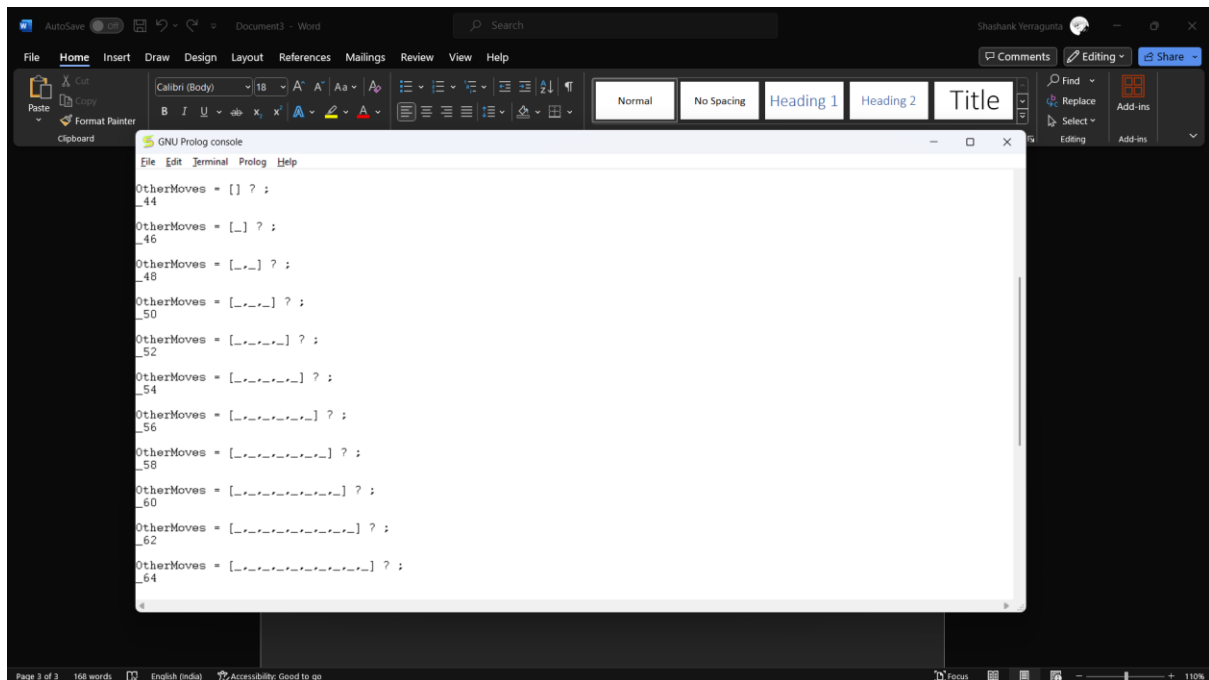
```
print_moves([]).
```

print\_moves([Move|OtherMoves]) :-

write(Move), nl,

print\_moves(OtherMoves).

OUTPUT:



The screenshot shows a Microsoft Word window titled 'Document3 - Word' with the 'Home' tab selected. A 'GNU Prolog console' window is open in the foreground, displaying the following text:

```
File Edit Terminal Prolog Help
OtherMoves = [] ? ;
_44
OtherMoves = [_] ? ;
_46
OtherMoves = [_ _] ? ;
_48
OtherMoves = [_ _ _] ? ;
_50
OtherMoves = [_ _ _ _] ? ;
_52
OtherMoves = [_ _ _ _ _] ? ;
_54
OtherMoves = [_ _ _ _ _ _] ? ;
_56
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_58
OtherMoves = [_ _ _ _ _ _ _ _] ? ;
_60
OtherMoves = [_ _ _ _ _ _ _ _ _] ? ;
_62
OtherMoves = [_ _ _ _ _ _ _ _ _ _] ? ;
_64
```

The Word window's status bar at the bottom indicates 'Page 3 of 3', '168 words', 'English (india)', and 'Accessibility: Good to go'. The console window's status bar shows 'Focus' and '110%' zoom.