



# SISTER NIVEDITA UNIVERSITY



## ARTIFICIAL INTELLIGENCE LAB ASSIGNMENT

SUBMITTED BY: PIYUSH CHANDRA CHANDRA

DEPT- BTECH (CSE), ROLL- 1027

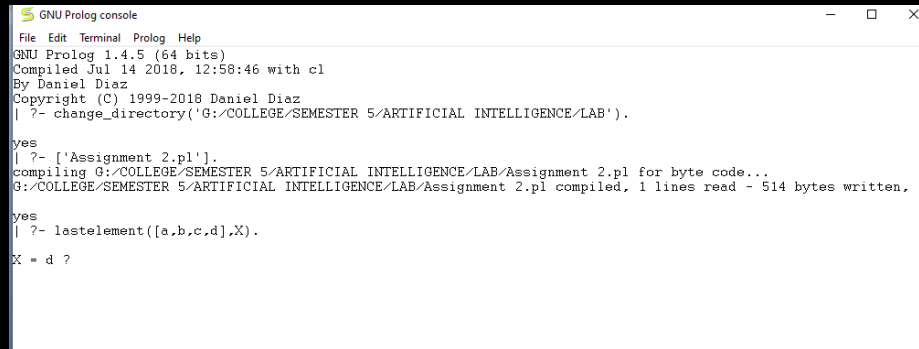
SUBMITTED TO: MOM BANERJEE

# ASSIGNMENT 2

18/11/2020 – 23/11/2020

## 1. Find the last element of a list .

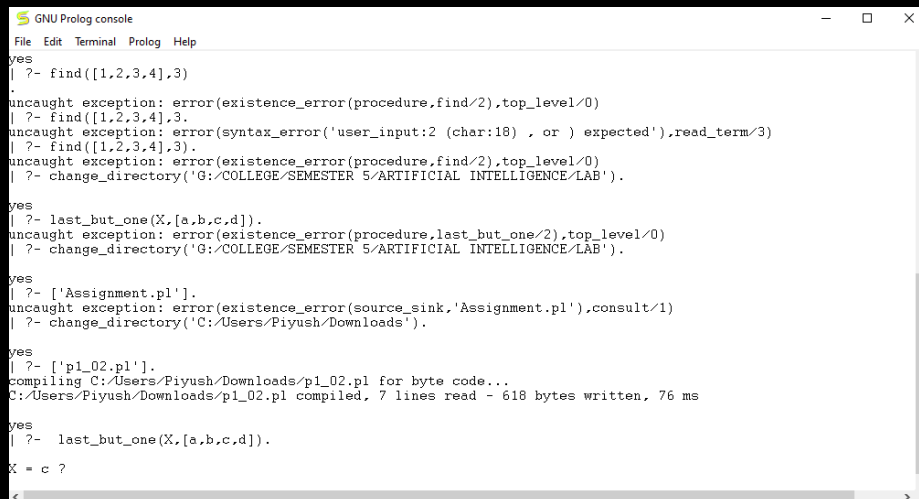
- `lastelement([X],X).`  
`lastelement([_|T],Y):-lastelement(T,Y).`



```
GNU Prolog console
File Edit Terminal Prolog Help
GNU Prolog 1.4.5 (64 bits)
Compiled Jul 14 2018, 12:58:46 with cl
By Daniel Diaz
Copyright (C) 1999-2018 Daniel Diaz
| ?- change_directory('G:/COLLEGE/SEMESTER 5/ARTIFICIAL INTELLIGENCE/LAB').
yes
| ?- ['Assignment 2.pl'].
compiling G:/COLLEGE/SEMESTER 5/ARTIFICIAL INTELLIGENCE/LAB/Assignment 2.pl for byte code...
G:/COLLEGE/SEMESTER 5/ARTIFICIAL INTELLIGENCE/LAB/Assignment 2.pl compiled, 1 lines read - 514 bytes written,
yes
| ?- lastelement([a,b,c,d],X).
X = d ?
```

## 2. Find the last but one element of a list

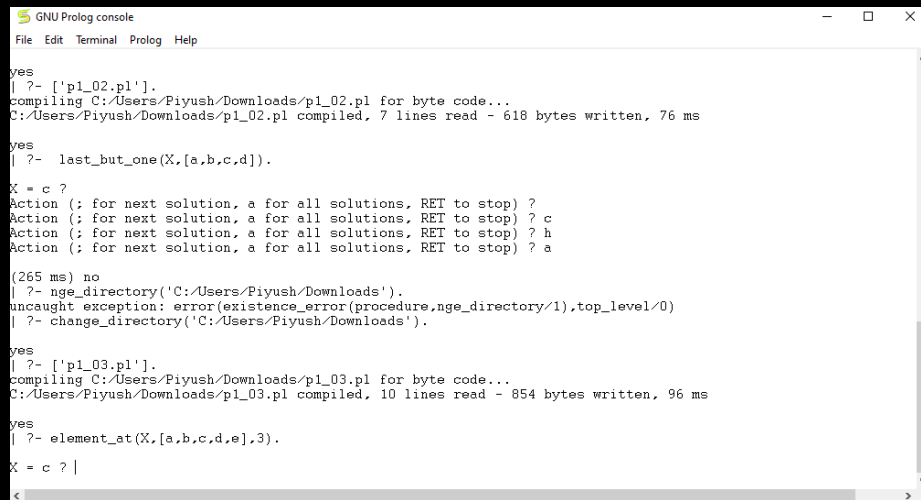
- `last_but_one(X,[X,_]).`  
`last_but_one(X,[_,Y|Ys]) :- last_but_one(X,[Y|Ys]).`



```
GNU Prolog console
File Edit Terminal Prolog Help
yes
| ?- find([1,2,3,4],3).
uncaught exception: error(existence_error(procedure,find/2),top_level/0)
| ?- find([1,2,3,4],3).
uncaught exception: error(syntax_error('user_input:2 (char:18) , or ) expected'),read_term/3)
| ?- find([1,2,3,4],3).
uncaught exception: error(existence_error(procedure,find/2),top_level/0)
| ?- change_directory('G:/COLLEGE/SEMESTER 5/ARTIFICIAL INTELLIGENCE/LAB').
yes
| ?- last_but_one(X,[a,b,c,d]).
uncaught exception: error(existence_error(procedure,last_but_one/2),top_level/0)
| ?- change_directory('G:/COLLEGE/SEMESTER 5/ARTIFICIAL INTELLIGENCE/LAB').
yes
| ?- ['Assignment.pl'].
uncaught exception: error(existence_error(source_sink,'Assignment.pl'),consult/1)
| ?- change_directory('C:/Users/Piyush/Downloads').
yes
| ?- ['p1_02.pl'].
compiling C:/Users/Piyush/Downloads/p1_02.pl for byte code...
C:/Users/Piyush/Downloads/p1_02.pl compiled, 7 lines read - 618 bytes written, 76 ms
yes
| ?- last_but_one(X,[a,b,c,d]).
X = c ?
```

### 3. Find the k th element of a list

- `element_at(X,[X],1).`  
`element_at(X,[_L],K) :- K > 1, K1 is K - 1, element_at(X,L,K1).`



```
GNU Prolog console
File Edit Terminal Prolog Help
yes
| ?- ['p1_02.pl'].
compiling C:/Users/Piyush/Downloads/p1_02.pl for byte code...
C:/Users/Piyush/Downloads/p1_02.pl compiled, 7 lines read - 618 bytes written, 76 ms

yes
| ?- last_but_one(X,[a,b,c,d]).
X = c ?
Action (; for next solution, a for all solutions, RET to stop) ?
Action (; for next solution, a for all solutions, RET to stop) ? c
Action (; for next solution, a for all solutions, RET to stop) ? h
Action (; for next solution, a for all solutions, RET to stop) ? a

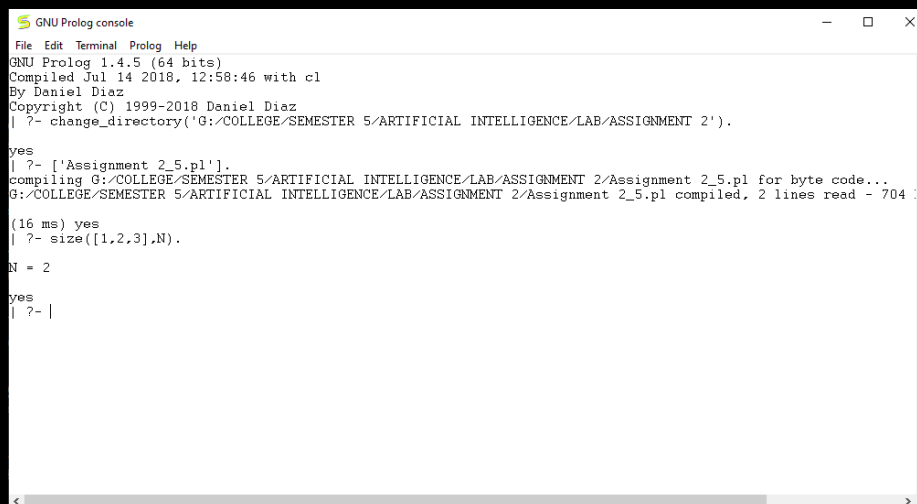
(265 ms) no
| ?- nge_directory('C:/Users/Piyush/Downloads').
uncaught exception: error(existence_error(procedure, nge_directory/1), top_level/0)
| ?- change_directory('C:/Users/Piyush/Downloads').

yes
| ?- ['p1_03.pl'].
compiling C:/Users/Piyush/Downloads/p1_03.pl for byte code...
C:/Users/Piyush/Downloads/p1_03.pl compiled, 10 lines read - 854 bytes written, 96 ms

yes
| ?- element_at(X,[a,b,c,d,e],3).
X = c ? |
```

### 4. Find the number of elements of a list excluding head element

- `size([],-1).`  
`size([_T],N):-size(T,N1),N is N1+1.`



```
GNU Prolog console
File Edit Terminal Prolog Help
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| ?- change_directory('G:/COLLEGE/SEMESTER 5/ARTIFICIAL INTELLIGENCE/LAB/ASSIGNMENT 2').

yes
| ?- ['Assignment 2_5.pl'].
compiling G:/COLLEGE/SEMESTER 5/ARTIFICIAL INTELLIGENCE/LAB/ASSIGNMENT 2/Assignment 2_5.pl for byte code...
G:/COLLEGE/SEMESTER 5/ARTIFICIAL INTELLIGENCE/LAB/ASSIGNMENT 2/Assignment 2_5.pl compiled, 2 lines read - 704

(16 ms) yes
| ?- size([1,2,3],N).
N = 2

yes
| ?- |
```