

17. Write a Prolog Program to Sum the Integers from 1 to n.

% Base case: sum from 1 to 1 is 1

sum_to_n(1, 1).

% Recursive case: sum from 1 to N = N + sum from 1 to (N-1)

sum_to_n(N, Sum) :-

N > 1,

N1 is N - 1,

sum_to_n(N1, Sum1),

Sum is N + Sum1.

?- sum_to_n(5, Result).

Result = 15.

?- sum_to_n(10, Result).

Result = 55.

Output:

```
?-
% c:/users/dell/desktop/sum of integer compiled 0.00 sec. 0 clauses
% c:/users/dell/desktop/sum of integer compiled 0.02 sec. 0 clauses
?-
|   ?- sum_to_n(5, Result).
Result = 15.

?- sum_to_n(10, Result).
Result = 55.
ERROR: Unknown procedure: (?-)/1
ERROR: ?- is the Prolog prompt
ERROR: See FAQ at https://www.swi-prolog.org/FAQ/ToplevelMode.txt
ERROR: In:
ERROR:   [9] throw(error(existence_error(procedure,...),_20188))
ERROR:   [6] correct_goal((?-sum_to_n(5,_20234)),user,['Result'=_20246],_20224) at c:/program files/swipl/boot/dwin.pl:92
ERROR:
ERROR: Note: some frames are missing due to last-call optimization.
ERROR: Re-run your program in debug mode (:- debug.) to get more detail.
?- Result = 15.

?- |   ERROR: Unknown procedure: (?-)/1
ERROR:   ?- is the Prolog prompt
ERROR:   See FAQ at https://www.swi-prolog.org/FAQ/ToplevelMode.txt
ERROR: In:
ERROR:   [9] throw(error(existence_error(procedure,...),_2690))
ERROR:   [6] correct_goal((?-sum_to_n(10,_2736)),user,['Result'=_2748],_2726) at c:/program files/swipl/boot/dwin.pl:92
ERROR:
ERROR: Note: some frames are missing due to last-call optimization.
ERROR: Re-run your program in debug mode (:- debug.) to get more detail.
?- Result = 55.

?- ■
```