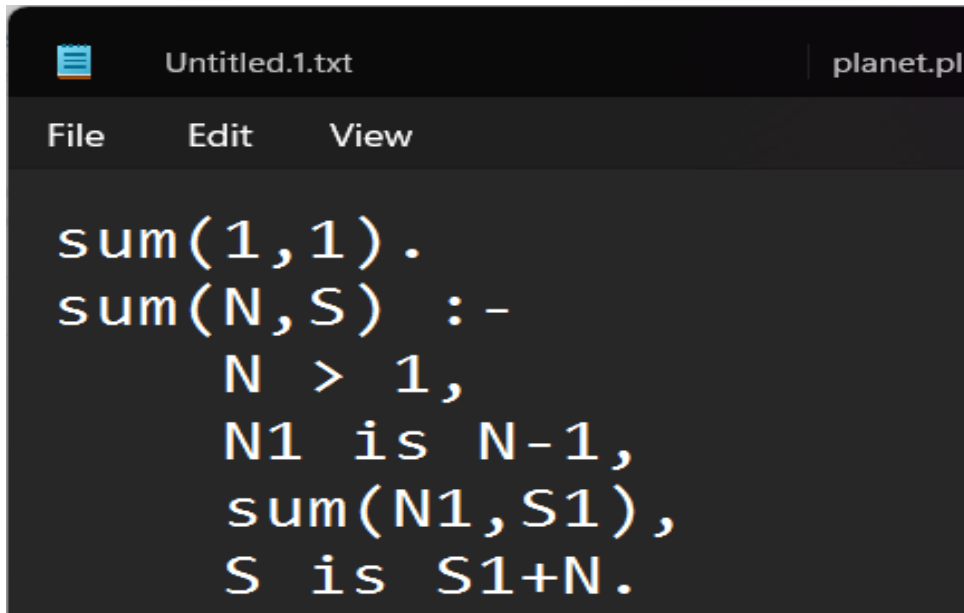


AIM


To write and execute a Prolog program that finds the sum of the first N natural numbers using recursion.

ALGORITHM

1. **Start** the program.
2. Define the **base case**:
 - If $N = 1$, then $\text{sum}(1,1)$.
3. Define the **recursive case**:
 - If $N > 1$,
 - Compute $N1 = N - 1$.
 - Recursively find $\text{sum}(N1, S1)$.
 - Compute $S = S1 + N$.
4. Query the program with the required value of N .
5. The Prolog interpreter will compute the sum and display the result.
6. **Stop**.

A screenshot of a text editor window titled 'Untitled.1.txt' with a 'planet.pl' tab. The editor has a menu bar with 'File', 'Edit', and 'View'. The code is written in Prolog and defines a recursive function 'sum' to calculate the sum of the first N natural numbers. The base case is 'sum(1,1)'. The recursive case is defined as 'sum(N,S) :- N > 1, N1 is N-1, sum(N1,S1), S is S1+N.'.

```
sum(1,1).  
sum(N,S) :-  
    N > 1,  
    N1 is N-1,  
    sum(N1,S1),  
    S is S1+N.
```

 SWI-Prolog (AMD64, Multi-threaded, version 9.2.9)
File Edit Settings Run Debug Help
Welcome to SWI-Prolog (threaded, 64 bits, version 9.2.9)
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).`

`?-`
`% c:/Users/gayathri/Downloads/sum(1,1).pl compiled 0.00 sec, 2 clauses`
`?- sum(5,S).`
`S = 15` ■

Result: The program calculates the sum of the first N natural numbers; for example, if $N = 5$, the sum is 15.