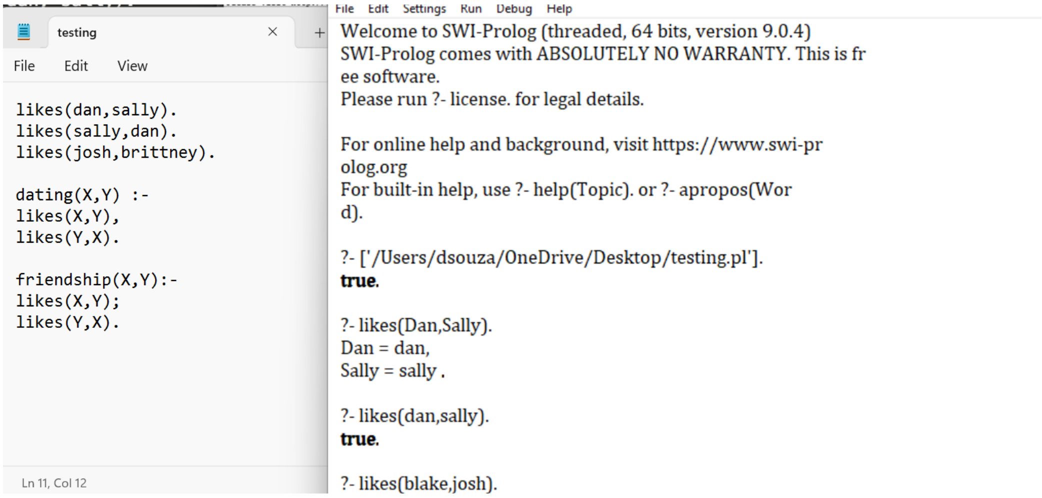
A.I Practical - Prolog Programming



```
likes(dan,sally).
likes(sally,dan).
likes(josh,brittney).

dating(X,Y) :-
likes(X,Y),
likes(Y,X).

friendship(X,Y):-
likes(X,Y);
likes(Y,X).
```

```
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ee software.
Please run ?- license. for legal details.

For online help and background, visit https://www.swi-pr
olog.org
For built-in help, use ?- help(Topic). or ?- apropos(Wor
d).

?- ['/Users/dsouza/OneDrive/Desktop/testing.pl'].
true.

?- likes(Dan,Sally).
Dan = dan,
Sally = sally .

?- likes(dan,sally).
true.

?- likes(blake,josh).
```

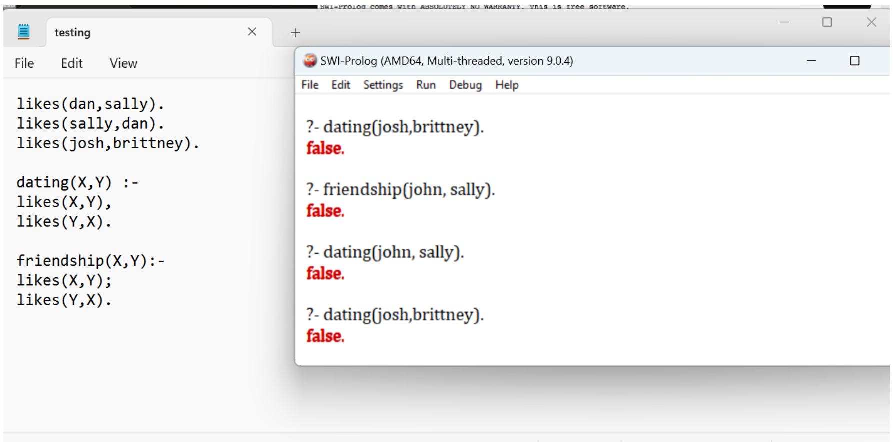
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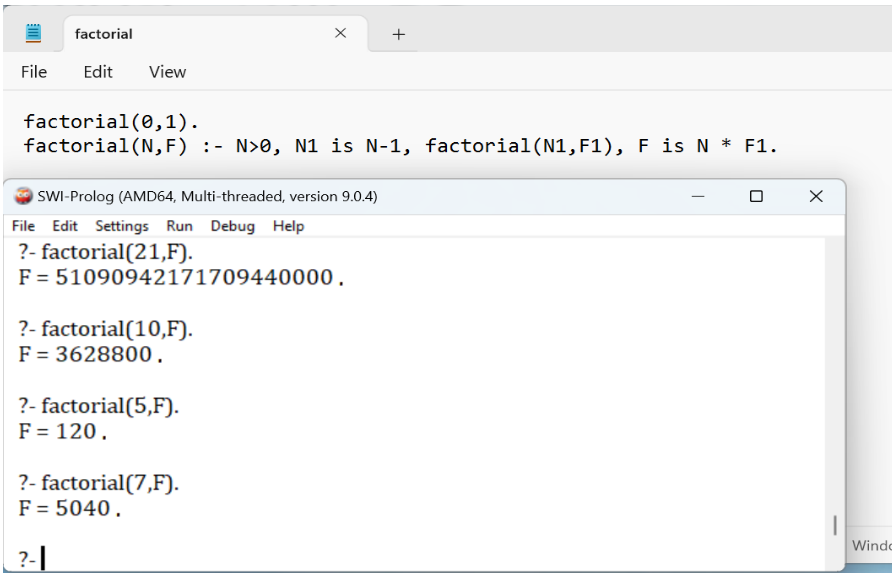
testing
File
Edit
View
SWI-Prolog (AMD64, Multi-threaded, version 9.0.4)
File
Edit
Settings
Run
Debug
Help

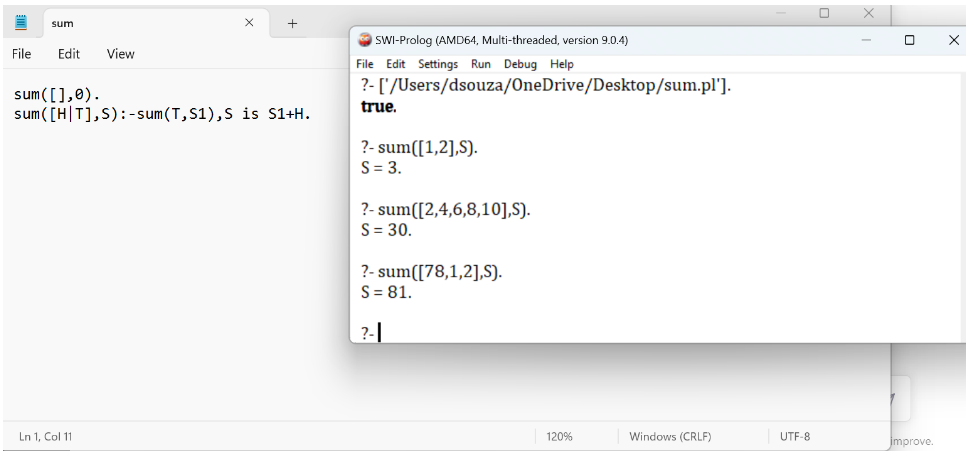
```
likes(dan,sally).
likes(sally,dan).
likes(josh,brittney).

dating(X,Y) :-
likes(X,Y),
likes(Y,X).

friendship(X,Y):-
likes(X,Y);
likes(Y,X).
```

```
?- dating(josh,brittney).
false.

?- friendship(john, sally).
false.

?- dating(john, sally).
false.

?- dating(josh,brittney).
false.
```



```
factorial(0,1).
factorial(N,F) :- N>0, N1 is N-1, factorial(N1,F1), F is N * F1.
```

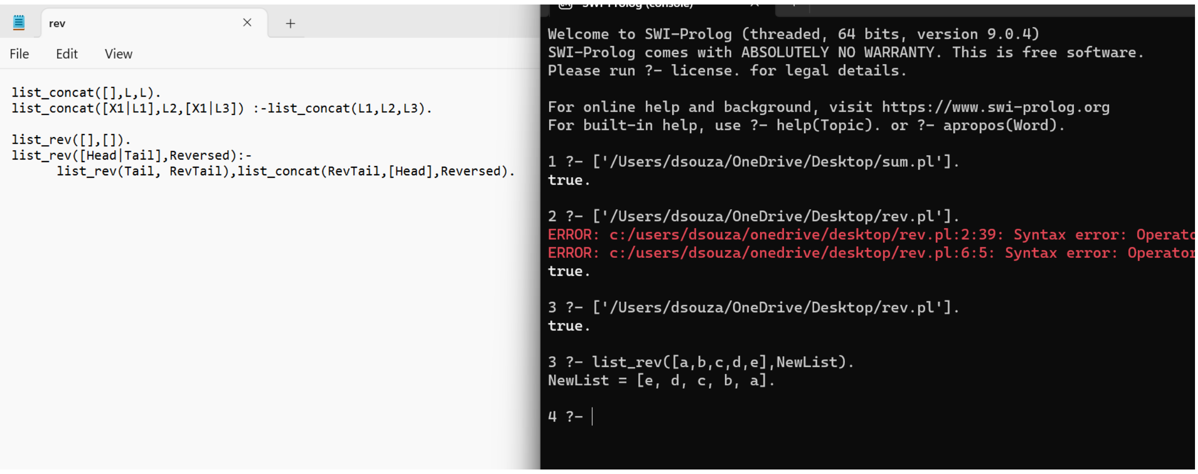
```
?- factorial(21,F).
F = 51090942171709440000 .

?- factorial(10,F).
F = 3628800 .

?- factorial(5,F).
F = 120 .

?- factorial(7,F).
F = 5040 .

?-
```


sum
File Edit View
SWI-Prolog (AMD64, Multi-threaded, version 9.0.4)
File Edit Settings Run Debug Help
Ln 1, Col 11
120%
Windows (CRLF)
UTF-8
improve.

```
sum([],0).
sum([H|T],S):-sum(T,S1),S is S1+H.
```

```
?- ['/Users/dsouza/OneDrive/Desktop/sum.pl'].
true.

?- sum([1,2],S).
S = 3.

?- sum([2,4,6,8,10],S).
S = 30.

?- sum([78,1,2],S).
S = 81.

?-
```

Program to reverse a list



```
list_concat([],L,L).
list_concat([X1|L1],L2,[X1|L3]) :-list_concat(L1,L2,L3).

list_rev([],[]).
list_rev([Head|Tail],Reversed):-
      list_rev(Tail, RevTail),list_concat(RevTail,[Head],Reversed).
```

```
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1 ?- ['/Users/dsouza/OneDrive/Desktop/sum.pl'].
true.

2 ?- ['/Users/dsouza/OneDrive/Desktop/rev.pl'].
ERROR: c:/users/dsouza/onedrive/desktop/rev.pl:2:39: Syntax error: Operato
ERROR: c:/users/dsouza/onedrive/desktop/rev.pl:6:5: Syntax error: Operator
true.

3 ?- ['/Users/dsouza/OneDrive/Desktop/rev.pl'].
true.

3 ?- list_rev([a,b,c,d,e],NewList).
NewList = [e, d, c, b, a].

4 ?-
```
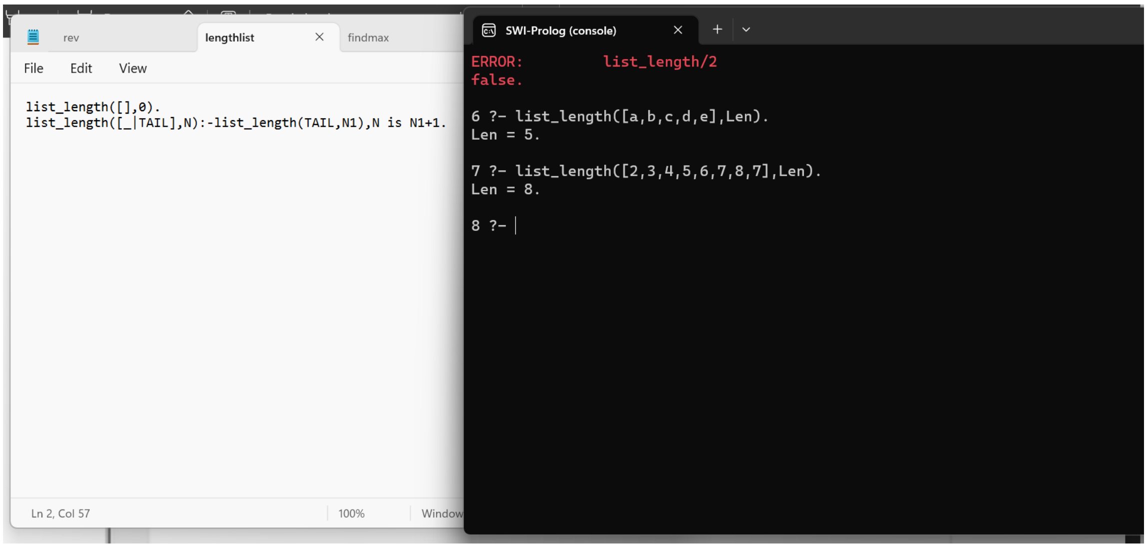
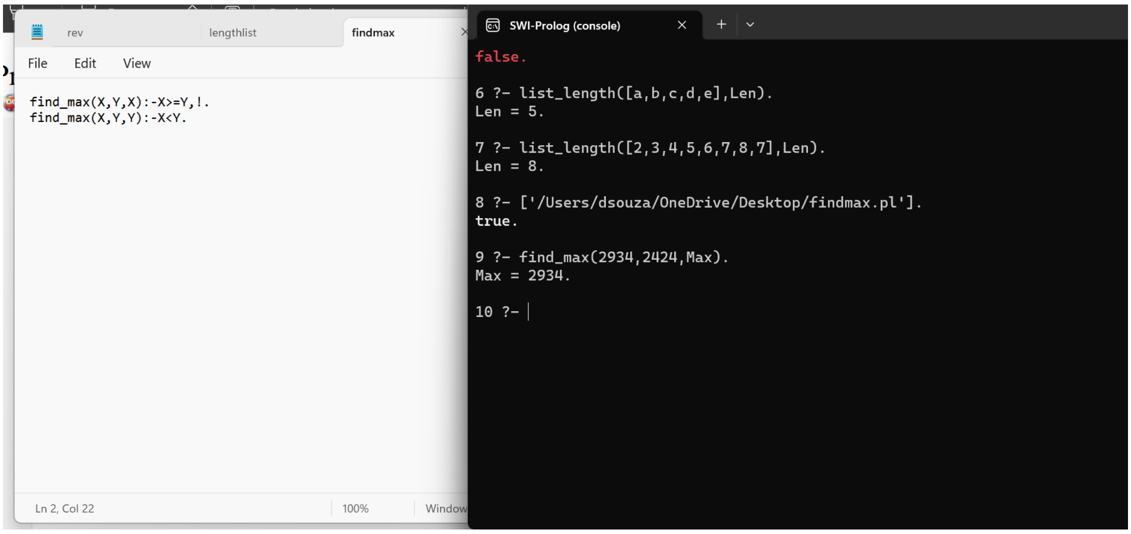

Program to find the length of a list



```
list_length([],0).
list_length([_|TAIL],N):-list_length(TAIL,N1),N is N1+1.
```

```
ERROR:        list_length/2
false.

6 ?- list_length([a,b,c,d,e],Len).
Len = 5.

7 ?- list_length([2,3,4,5,6,7,8,7],Len).
Len = 8.

8 ?-
```

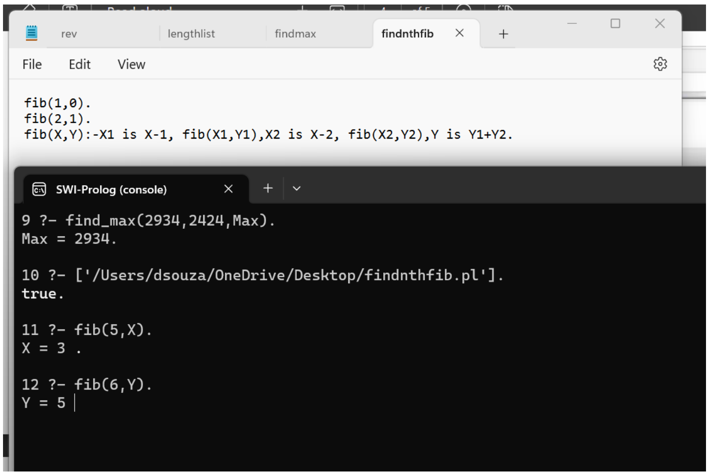
Find max between to numbers



```
find_max(X,Y,X):-X>=Y,!.
find_max(X,Y,Y):-X<Y.
```

```
false.

6 ?- list_length([a,b,c,d,e],Len).
Len = 5.

7 ?- list_length([2,3,4,5,6,7,8,7],Len).
Len = 8.

8 ?- ['/Users/dsouza/OneDrive/Desktop/findmax.pl'].
true.

9 ?- find_max(2934,2424,Max).
Max = 2934.

10 ?-
```

Find nth fibonacci of a number



```
fib(1,0).
fib(2,1).
fib(X,Y):-X1 is X-1, fib(X1,Y1),X2 is X-2, fib(X2,Y2),Y is Y1+Y2.
```

```
9 ?- find_max(2934,2424,Max).
Max = 2934.

10 ?- ['/Users/dsouza/OneDrive/Desktop/findnthfib.pl'].
true.

11 ?- fib(5,X).
X = 3 .

12 ?- fib(6,Y).
Y = 5
```