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Actividad 5.1 Programación Lógica

7. Write a predicate fact/2 which takes a natural number as first argument, and returns the factorial of the number.

fact(0, 1).

fact(X, R) :- X > 0, X1 is X-1, fact(X1, R2), R is R2*X.

The screenshot shows the SWISH Prolog IDE interface. On the left, the program editor contains the following code:

```
1 fact(0, 1).
2 fact(X, R) :- X > 0, X1 is X-1, fact(X1, R2), R is R2*X.
```

On the right, the execution console shows the results of several queries:

- fact(1, X) → X = 1, false
- fact(2, X) → X = 2, false
- fact(3, X) → X = 6, false
- fact(4, X) → X = 24, false
- fact(5, X) → X = 120, false

Below these, a query is shown: `?- fact(5, X).` with a blank space for the result. The bottom of the interface includes tabs for Examples, History, and Solutions, and a checkbox for 'table results'.

16. Define sum/2 to take a list of integers as input and return the output as their sum.

listsum([], 0).

listsum([Head|Tail], Result) :-

listsum(Tail, SumOfTail),

Result is Head + SumOfTail.

The screenshot shows the SWISH Prolog IDE interface. On the left, the program editor contains the following code:

```
1 listsum([], 0).
2 listsum([Head|Tail], Result) :-
3   listsum(Tail, SumOfTail),
4   Result is Head + SumOfTail.
```

On the right, the execution console shows the results of several queries:

- listsum([5, 10, 20], X) → X = 35
- listsum([1, 2, 3, 4, 5, 6], X) → X = 21

Below these, a query is shown: `?- listsum([1, 2, 3, 4, 5, 6], X).` with a blank space for the result. The bottom of the interface includes tabs for Examples, History, and Solutions, and a checkbox for 'table results'.

