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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 several test cases for the `fact/2` predicate:

- `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', along with a 'table results' checkbox and a 'Run' button.

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

sum([], 0).

sum([Head|Tail], R) :-

sum(Tail, SumTail),

R is Head + SumTail.

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

```
1 sum([], 0).  
2 sum([Head|Tail], R) :-  
3   sum(Tail, SumTail),  
4   R is Head + SumTail.  
5
```

On the right, the execution console shows several test cases for the `sum/2` predicate:

- `sum([5, 10, 20], X)`: `X = 35`
- `sum([1, 2, 3, 4, 5, 6], X)`: `X = 21`

Below these, a query is shown: `?- sum([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', along with a 'table results' checkbox and a 'Run' button.

