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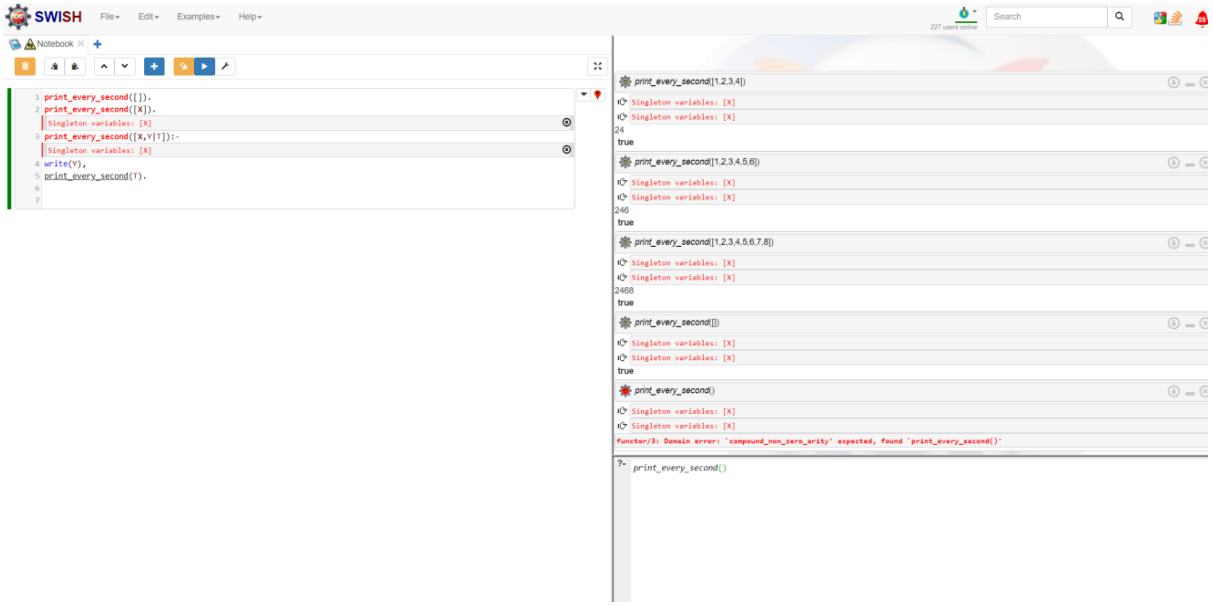
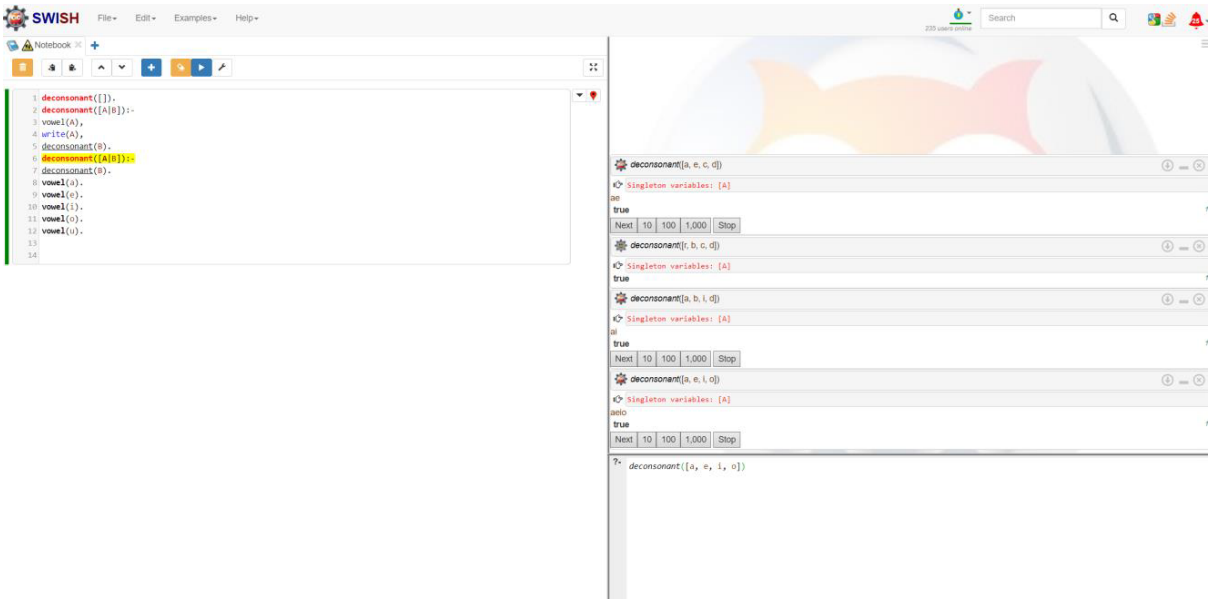
Actividad 5.1 Programación Lógica

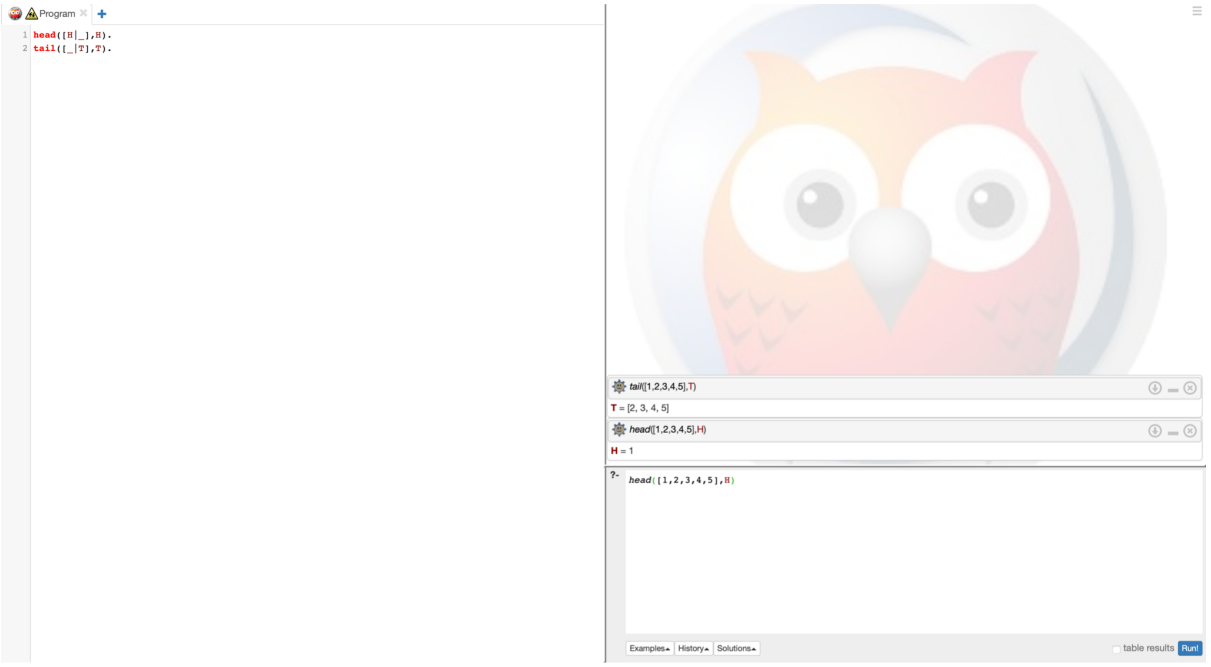
1. Write a predicate print every second/1 to print every other element in a list, beginning at the second element —i.e. the 2nd, 4th, 6thelements etc. It should always succeed provided it is given a list as its argument.



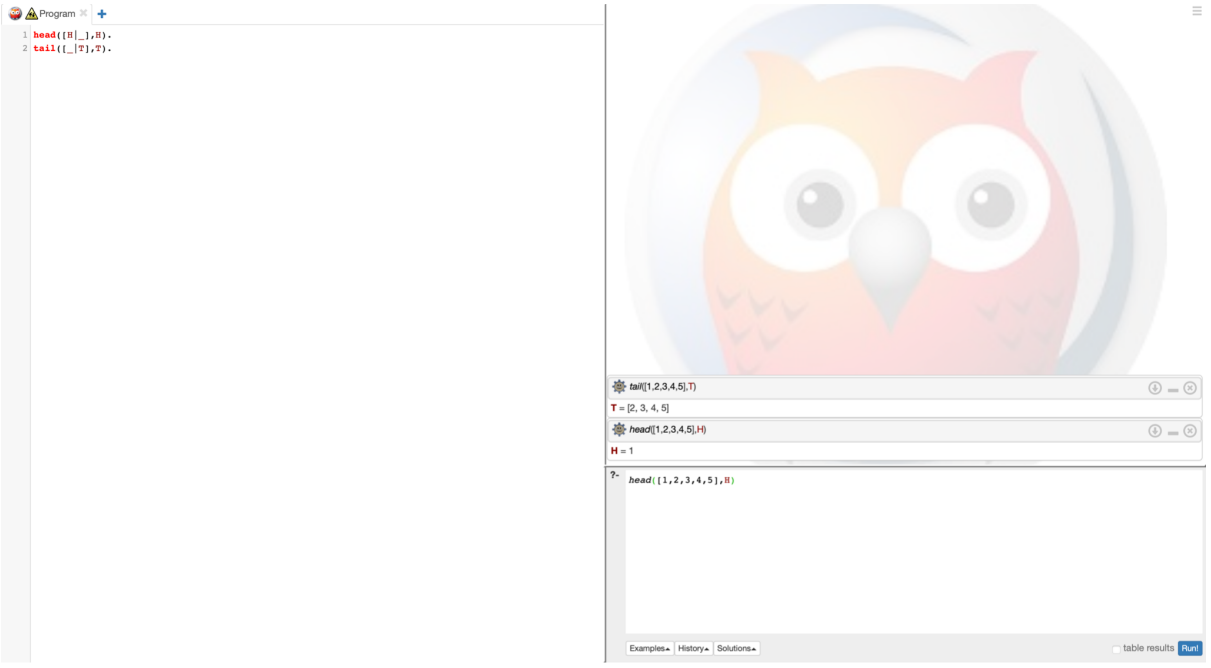
2. Write a predicate deconsonant/1 to print any element of a list that isn't a consonant (i.e. we want to print out the vowels fa,e,i,o,ug). It should always succeed provided it is given a list as its argument (we assume that the input list only contains vowels and consonants).



3. Write a predicate head/2 which takes a list as its first argument and returns the head of the list as its second argument. It should fail if there is no first element.



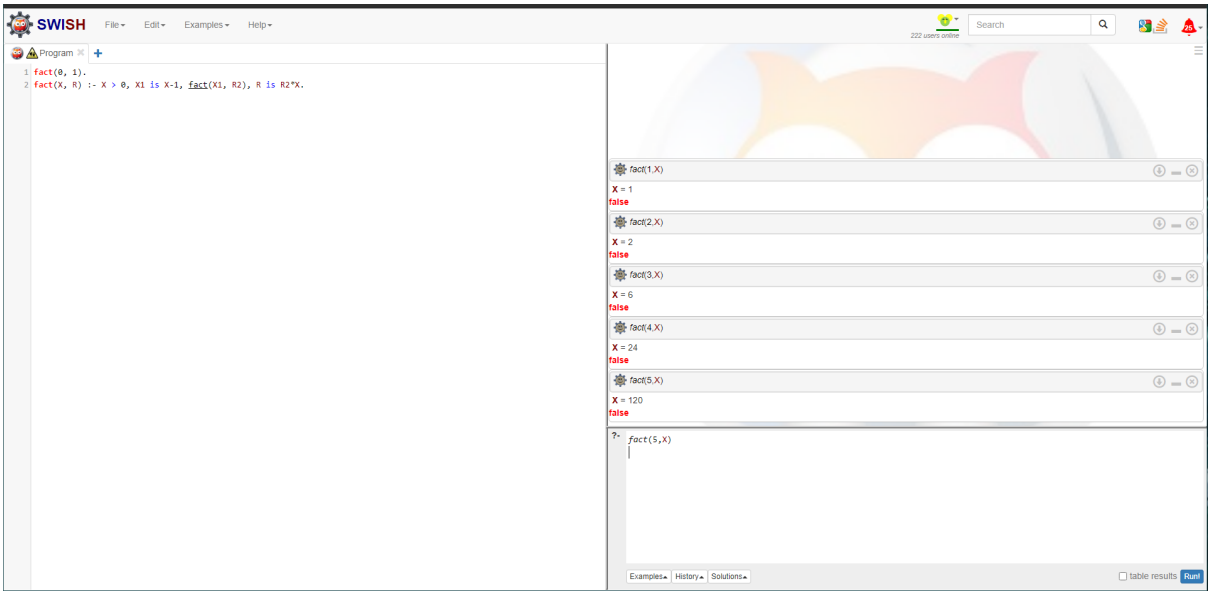
4. Write a predicate tail/2 which takes a list as its first argument and returns the tail of the list as its second argument. It should fail if there is no first element.



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

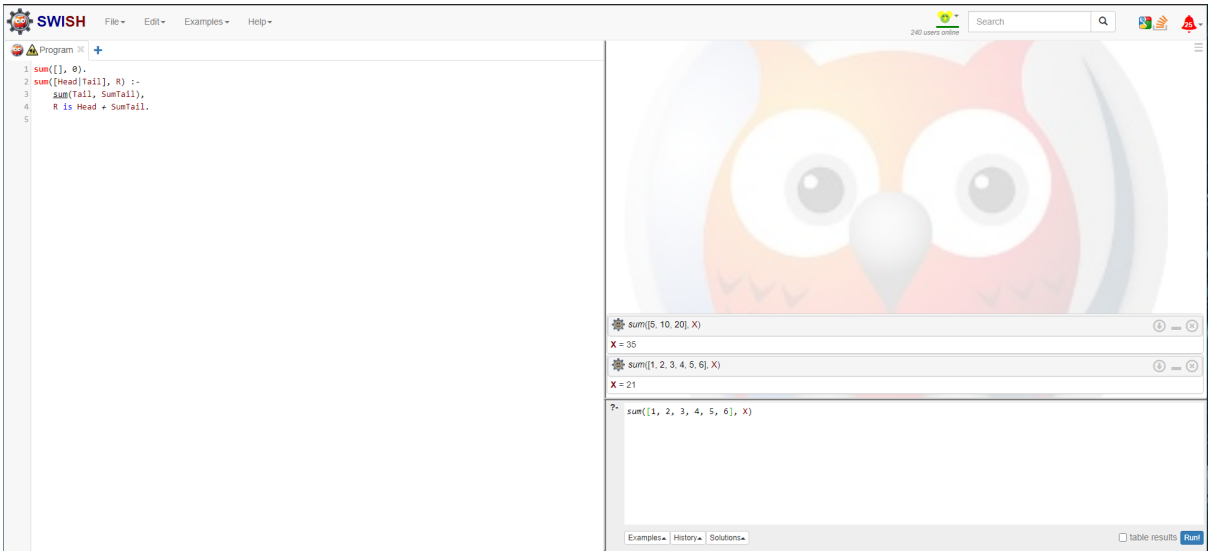
fact(0, 1).

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



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.
```



19. Write a predicate split/4 that splits a list into two parts, the length of the first part is given.

```
split(L,0,[],L).
split([Head|TailX],N,[Head|TailY],List2) :- N > 0, N1 is N - 1, split(TailX,N1,TailY,List2).
```

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```
split(L,0,[],L).
split([Head|TailX],N,[Head|TailY],List2) :- N > 0, N1 is N - 1, split(TailX,N1,TailY,List2).
```

split([1, 2, 3, 4], 3, X, Y)

X = [1, 2, 3],
Y = [4]
false

split([1, 2, 3, 4, 7, 8, 9 , 10], 3, X, Y)

X = [1, 2, 3],
Y = [4, 7, 8, 9, 10]
false

split([1, 2, 3, 4, 7, 8, 9 , 10], 6, X, Y)

X = [1, 2, 3, 4, 7, 8],
Y = [9, 10]
false

split([], 0, X, Y)

X = Y, Y = []

?- split([], 0, X, Y)

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