Iniziato	giovedì, 11 giugno 2020, 10:16
Stato	Completato
Terminato	giovedì, 11 giugno 2020, 11:05
Tempo impiegato	49 min. 11 secondi

Domanda **1**

Completo

Punteggio max.: 6,00

What does the following function compute?

```
def mystery2(l: List[Int]) =
  (0 :: (l filter (_ < 100) map (x=>1))) reduce (_ + _)
```

Justify your answer.

This function computes the number of elements within a List (of Int type in this case) whose values is less than 100.

Domanda **2**

Completo

Punteggio max.: 6,00

Consider the following declarations:

```
val S = Set(1,3,4,7)
val S2 = S ++ (S map (_+1))
```

What is the type and the value of S2?
Justify your answer.

The type of S2 is a Set.

The value of S2 is: Set(1, 3, 4, 7, 2, 4, 5, 8)

Domanda **3**

Completo

Punteggio max.: 6,00

Consider the following expression:

```
(List(3,9,12) foldLeft 4)(_ - _)
```

Describe its evaluation and the final computed value.

The evaluation proceeds as follows:

- the first computation is (4 - 3) which is 1 (4 is the foldLeft starting value and 3 is the most left element in the list).

- the second is (1 - 9) which is -8 (1 is the result of the previous computation while 9 is the next element of the list).

- the final one is (-8 - 12) which is -20 (-8 is the result of the previous computation while 12 is the next element of the list).

So the final value computed is -20.

Domanda **4**

Completo

Punteggio max.: 6,00

Consider the following function:

def mystery(f: Int=>Int, x: Int): Int = f(x+1)

What is the result of the evaluation of the following expression:

List(5,1,3) map (x=>x+mystery(_+1,x+1))

Justify your answer.

The result is: List(13, 5, 9).

So the function adds to each element (Int in this case) within the list its value + (its value + 3).

The function mymistery(), for an element, returns the element value + 3.

Then, the map function maps each element with the sum of itself and the value returned by mymistery() function which is indeed the element value + 3.

Domanda **5**

Completo

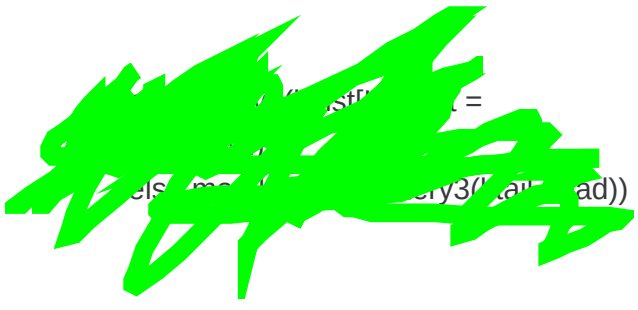
Punteggio max.: 6,00

The following function mystery3 is not tail recursive:

```
def max(x1: Int, x2: Int) = if (x1>x2) x1 else x2

def mystery3(l:List[Int]):Int =
  if (l == Nil) 0
  else max(l.head,mystery3(l.tail))
```

Write an equivalent tail recursive function.



◄ Exam June 3, 2020

Vai a...