Learning to Program with F#
Exercises
Department of Computer Science
University of Copenhagen

Jon Sporring, Martin Elsman, Torben Mogensen, Christina Lioma

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0.1 Leaf trees

0.1.1 Teacher's guide

0.1.2 Introduction

In the following exercises, we shall investigate the following recursive type definition for trees:

```
type 'a tree = Leaf of 'a | Tree of 'a tree * 'a tree
```

The tree type is generic in the type of information that can be installed in `Leaf` nodes.

0.1.3 Exercise(s)

0.1.3.1: Write a function `leafs : 'a tree -> int` that returns the number of leaf nodes appearing in a tree. Evaluate that your function works as expected.

0.1.3.2: Write a function `find : ('a -> bool) -> 'a tree -> 'a option` that, using a preorder traversal, returns the first value that satisfies the provided predicate. If no such value appears in the tree, the function should return the value `None`. Evaluate that your function works as expected.

0.1.3.3: Write a function `sum : int tree -> int` that returns the sum of the integer values appearing in the leafs of the tree. Evaluate that your function works as expected.