CSE 130 (Wi 25) Handout

Feb 6, 2025

Question 1

Given the following datatype

```haskell
data Nat = Zero | Succ Nat
```

Fill in the blank with the value of `q1`

```haskell
-- >>> q1
-- _____
```

```haskell
q1    = foo 2
foo i = if i <= 0 then Zero else Succ (foo (i - 1))
```

Question 2

Write down a Haskell datatype for a **binary tree** with `Int` elements stored at the **nodes**

```haskell
data Tree = _____

          | _____
```

Question 3

Write down a Haskell datatype for a **binary tree** with `Int` elements stored at the **leaves**

```haskell
data Tree = _____

          | _____
```

Question 4

Is the following function **tail-recursive**?

```haskell
sumTo :: Int -> Int
sumTo n = if n <= 0 then 0 else n + sumTo (n - 1)
```

If not, write a tail-recursive version of it.

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