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1  — Aufgabe 1
2  data GTree a = Leaf a | GNode a [GTree a]
3      deriving (Eq, Ord, Show, Read)
4
5  baum :: GTree Int
6  baum = GNode 1 [(GNode 2 [(GNode 5 [Leaf 7]), Leaf 6]),
7      Leaf 3, Leaf 4]
8
9  — a)
10 countLeaf :: GTree a -> Int
11 countLeaf (Leaf a) = 1
12 countLeaf (GNode a []) = 0
13 countLeaf (GNode a (x:xs)) = countLeaf x + countLeaf (GNode
14     a xs)
15
16 — b)
17 summe :: Num a => GTree a -> a
18 summe (Leaf a) = a
19 summe (GNode a []) = a
20 summe (GNode a (x:xs)) = summe x + summe (GNode a xs)
21
22 — c)
23 hoehe :: GTree a -> Int
24 hoehe (Leaf a) = 0
25 hoehe (GNode a []) = 0
26 hoehe (GNode a (x:xs)) = max (1 + hoehe x) (1 + hoehe (
27     GNode a xs))
28
29 — d)
30 search :: Eq a => a -> (GTree a) -> Bool
31 search x (Leaf a) = x == a
32 search x (GNode a []) = x == a
33 search x (GNode a (y:ys)) = x == a || search x y || search
34     x (GNode a ys)
35
36 — e)
37
38 mapGTree :: (a->b) -> GTree a -> GTree b
39 mapGTree f (Leaf a) = Leaf (f a)
40 mapGTree f (GNode a (x:[])) = GNode (f a) [(mapGTree f x)]
41 mapGTree f (GNode a (x:xs)) = GNode (f a) ((mapGTree f x)

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      :[(mapGTree f (GNode a xs))])
37 — fehlerhaft
38
39 — f)
40 collapse :: GTree a -> [a]
41 collapse (Leaf a) = [a]
42 collapse (GNode a []) = [a]
43 collapse (GNode a (x:xs)) = collapse x ++ collapse (GNode a
      xs)
44
45 — Aufgabe 2
46 process :: [Int] -> Int -> Int -> Int
47 process xs n m
48   | length xs < n || length xs < m = 0
49   | otherwise = xs !! (n-1) + xs !! (m-1)
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