Started on	Wednesday, 8 October 2025, 9:00 PM
State	Finished
Completed on	Wednesday, 8 October 2025, 10:34 PM
Time taken	1 hour 34 mins
Marks	500.00/500.00
Grade	**10.00** out of 10.00 (**100**%)

Question **1**

Correct

Mark 100.00 out of 100.00

Time limit	1 s
Memory limit	64 MB

Nama File: DepthBinaryTree.hs

Header: module DepthBinaryTree where

Lengkapi realisasi dari file berikut.

Haskell

DepthBinaryTree.hs

Score: 100

Blackbox

Score: 100

Verdict: Accepted

Evaluator: Exact

No	Score	Verdict	Description
1	10	Accepted	0.00 sec, 2.88 MB
2	10	Accepted	0.00 sec, 2.97 MB
3	10	Accepted	0.00 sec, 3.00 MB
4	10	Accepted	0.00 sec, 2.89 MB
5	10	Accepted	0.00 sec, 2.99 MB
6	10	Accepted	0.00 sec, 2.87 MB
7	10	Accepted	0.00 sec, 2.89 MB
8	10	Accepted	0.00 sec, 3.00 MB
9	10	Accepted	0.00 sec, 2.86 MB
10	10	Accepted	0.00 sec, 2.89 MB

Question **2**

Correct

Mark 100.00 out of 100.00

Time limit	1 s
Memory limit	64 MB

Nama File: CountPathSum.hs

Header: module CountPathSum where

Lengkapi realisasi dari file berikut.

Haskell

CountPathSum.hs

Score: 100

Blackbox

Score: 100

Verdict: Accepted

Evaluator: Exact

No	Score	Verdict	Description
1	6	Accepted	0.00 sec, 2.86 MB
2	6	Accepted	0.00 sec, 2.93 MB
3	6	Accepted	0.00 sec, 2.95 MB
4	6	Accepted	0.00 sec, 2.94 MB
5	6	Accepted	0.00 sec, 2.95 MB
6	6	Accepted	0.00 sec, 2.84 MB
7	6	Accepted	0.00 sec, 2.85 MB
8	6	Accepted	0.00 sec, 2.93 MB
9	6	Accepted	0.00 sec, 2.98 MB
10	6	Accepted	0.00 sec, 2.95 MB
11	6	Accepted	0.00 sec, 2.88 MB
12	6	Accepted	0.00 sec, 2.97 MB
13	6	Accepted	0.00 sec, 2.94 MB
14	6	Accepted	0.00 sec, 2.96 MB
15	16	Accepted	0.00 sec, 2.99 MB

Question **3**

Correct

Mark 100.00 out of 100.00

Time limit	1 s
Memory limit	64 MB

Nama File: PruneTree.hs

Header: module PruneTree where

Lengkapi realisasi dari file berikut.

Haskell

PruneTree.hs

Score: 100

Blackbox

Score: 100

Verdict: Accepted

Evaluator: Exact

No	Score	Verdict	Description
1	6	Accepted	0.00 sec, 3.18 MB
2	6	Accepted	0.00 sec, 3.28 MB
3	6	Accepted	0.00 sec, 3.13 MB
4	6	Accepted	0.00 sec, 3.13 MB
5	6	Accepted	0.00 sec, 3.08 MB
6	6	Accepted	0.00 sec, 3.20 MB
7	6	Accepted	0.00 sec, 3.02 MB
8	6	Accepted	0.00 sec, 3.00 MB
9	6	Accepted	0.00 sec, 3.17 MB
10	6	Accepted	0.00 sec, 3.21 MB
11	6	Accepted	0.00 sec, 3.11 MB
12	6	Accepted	0.00 sec, 3.30 MB
13	6	Accepted	0.00 sec, 3.20 MB
14	6	Accepted	0.00 sec, 3.07 MB
15	16	Accepted	0.00 sec, 3.06 MB

Question **4**

Correct

Mark 100.00 out of 100.00

Time limit	1 s
Memory limit	64 MB

Nama File: SumDeepestLeaves.hs

Header: module SumDeepestLeaves where

sumDeepestLeaves(t) mengembalikan jumlah nilai semua daun yang berada pada kedalaman (level) maksimum dari pohon biner t.

Anda diminta mengimplementasikan fungsi **sumDeepestLeaves** pada file berikut.

Spesifikasi Fungsi:

```
> sumDeepestLeaves :: (BinTree Int) -> Int
```

Batasan:

- Jumlah node dalam pohon berada dalam rentang [1, 10^4]
- 1 <= Node.val <= 100

Contoh aplikasi fungsi:

```
-- ghci> let tree1 = Node 1 (Node 2 (Node 4 (Node 7 Empty Empty) Empty) (Node 5 Empty Empty)) (Node 3 Empty (Node 6 Empty (Node 8 Empty Empty)))
-- ghci> sumDeepestLeaves tree1
-- 15
```

```
--    Penjelasan tree1:
--        1      <- level 1
--       / \
--      2   3    <- level 2
--     / \   \
--    4   5   6  <- level 3
--   /         \
--  7           8 <- level 4 (daun terdalam)
--  Daun terdalam: [7, 8], jumlah = 7 + 8 = 15
```

```
-- ghci> let tree2 = Node 6 (Node 7 (Node 2 (Node 9 Empty Empty) Empty) (Node 7 (Node 1 Empty Empty) (Node 4 Empty Empty))) (Node 8 (Node 1 Empty Empty) (Node 3 Empty (Node 5 Empty Empty)))
-- ghci> sumDeepestLeaves tree2
-- 19
--
--    Penjelasan tree2:
--        6      <- level 1
--       / \
--      7   8    <- level 2
--     / \ / \
--    2  7 1  3  <- level 3
--   /  / \    \
--  9  1   4    5 <- level 4 (daun terdalam)
--  Daun terdalam: [9, 1, 4, 5], jumlah = 9 + 1 + 4 + 5 = 19
```

```
ghci> sumDeepestLeaves Empty
0

ghci> sumDeepestLeaves (Node 5 Empty Empty)
5
```

Keterangan:

- Anda diperbolehkan menggunakan fungsi *helper*.

Haskell

SumDeepestLeaves.hs

Score: 100

Blackbox

Score: 100

Verdict: Accepted

Evaluator: Exact

No	Score	Verdict	Description
1	10	Accepted	0.00 sec, 2.89 MB
2	10	Accepted	0.00 sec, 2.88 MB
3	10	Accepted	0.00 sec, 2.88 MB
4	10	Accepted	0.00 sec, 2.99 MB
5	10	Accepted	0.00 sec, 2.99 MB
6	10	Accepted	0.00 sec, 2.98 MB
7	10	Accepted	0.00 sec, 2.99 MB
8	10	Accepted	0.00 sec, 3.00 MB
9	10	Accepted	0.00 sec, 2.88 MB
10	10	Accepted	0.00 sec, 2.98 MB

Question **5**

Correct

Mark 100.00 out of 100.00

Time limit	1 s
Memory limit	64 MB

Nama File: MaxRedSum.hs

Header: module MaxRedSum where

Diberikan sebuah binary tree berisi bilangan bulat positif pada setiap node. Semua node awalnya berwarna putih. Anda dapat memilih beberapa node untuk diwarnai **merah** dengan aturan bahwa tidak boleh ada dua node merah yang saling bertetangga (yaitu parent dan child tidak boleh keduanya merah).

Fungsi `maxRedSum` harus mengembalikan jumlah maksimum nilai pada node-node yang diwarnai merah jika pewarnaan dilakukan secara optimal. Implementasikan fungsi **maxRedSum** pada file berikut.

Spesifikasi Fungsi:

```
> maxRedSum :: (BinTree Int) -> Int
```

Batasan:

- Nilai pada setiap node ke-i adalah bilangan bulat positif dengan $v_i \leq 1000$.
- 1 ≤ n ≤ 12, dengan n adalah jumlah node dalam binary tree.

Contoh aplikasi fungsi:

```
-- Diberikan binary tree peta area:
--     3
--    / \
--   1   4
--      / \
--     2   6

> maxRedSum (Node 3 (Node 1 Empty Empty) (Node 4 (Node 2 Empty Empty) (Node 6 Empty Empty)))
11
```

Penjelasan:

Penjelasan: Pilihan optimal adalah mewarnai node bernilai 3, 2, dan 6 menjadi merah. Total = 3 + 2 + 6 = 11. Node 4 tidak boleh dipilih jika 2 atau 6 dipilih; demikian pula memilih 3 mencegah memilih anak-anaknya.

Keterangan:

- Anda diperbolehkan menggunakan fungsi *helper*.

Haskell

MaxRedSum.hs

Score: 100

Blackbox

Score: 100

Verdict: Accepted

Evaluator: Exact

No	Score	Verdict	Description
1	6	Accepted	0.00 sec, 3.08 MB
2	6	Accepted	0.00 sec, 3.07 MB
3	6	Accepted	0.00 sec, 3.09 MB
4	6	Accepted	0.00 sec, 3.21 MB
5	6	Accepted	0.00 sec, 3.09 MB
6	6	Accepted	0.00 sec, 3.14 MB

No	Score	Verdict	Description
7	6	Accepted	0.00 sec, 2.99 MB
8	6	Accepted	0.00 sec, 3.21 MB
9	6	Accepted	0.00 sec, 3.13 MB
10	6	Accepted	0.00 sec, 3.18 MB
11	6	Accepted	0.00 sec, 3.08 MB
12	6	Accepted	0.00 sec, 2.98 MB
13	6	Accepted	0.00 sec, 3.17 MB
14	6	Accepted	0.00 sec, 3.00 MB
15	6	Accepted	0.00 sec, 3.05 MB
16	10	Accepted	0.00 sec, 3.05 MB

◄ Praktikum 4 Jump to... Praktikum 5 ►