CSD2181/2183 – Data Structure

Exercises

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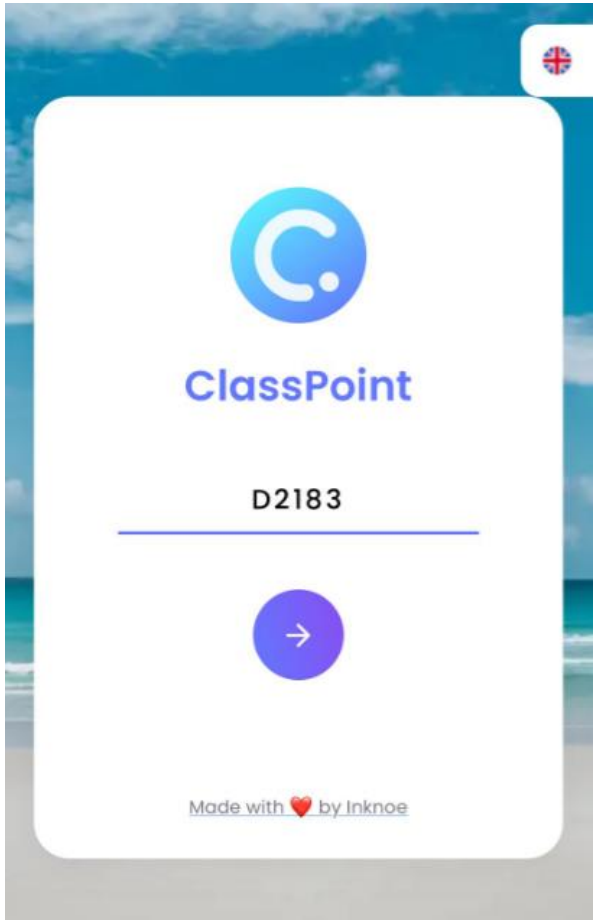
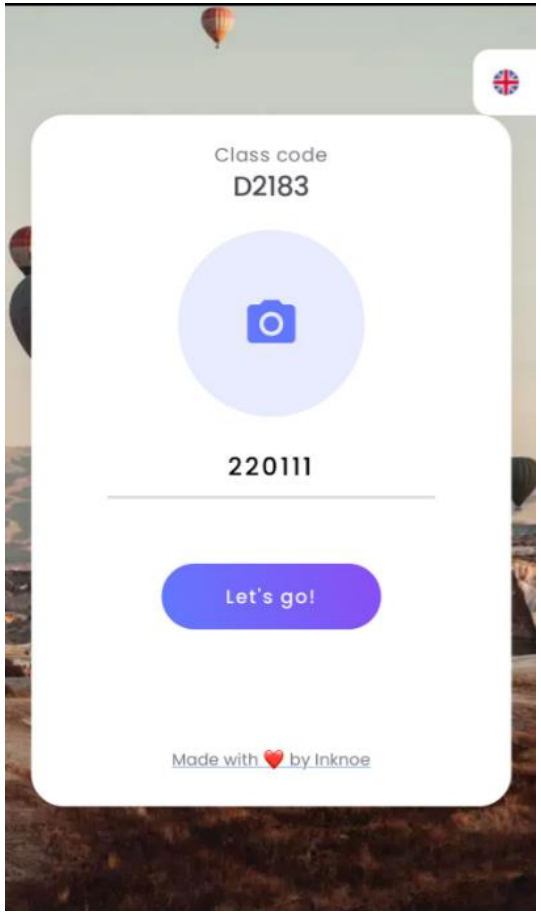
Introduction – Data Structure Exercises

https://www.classpoint.app/





OR

URL
classpoint.app

Class code
D2183

Introduction – Data Structure Exercises

- Purpose: to reinforce what you have learned and practiced in lectures.
- The exercise session is conducted face to face in class.
- It consists of a few MCQs to be solved within class.
- Limited time is given for each question (answer will be discussed afterwards).
- You are required to login to ClassPoint with your student ID.
- So, bring along your laptop or devices with Internet access.
- Attendance is compulsory and there is no make up.
- Exercises are marked considering your overall performance in the module.

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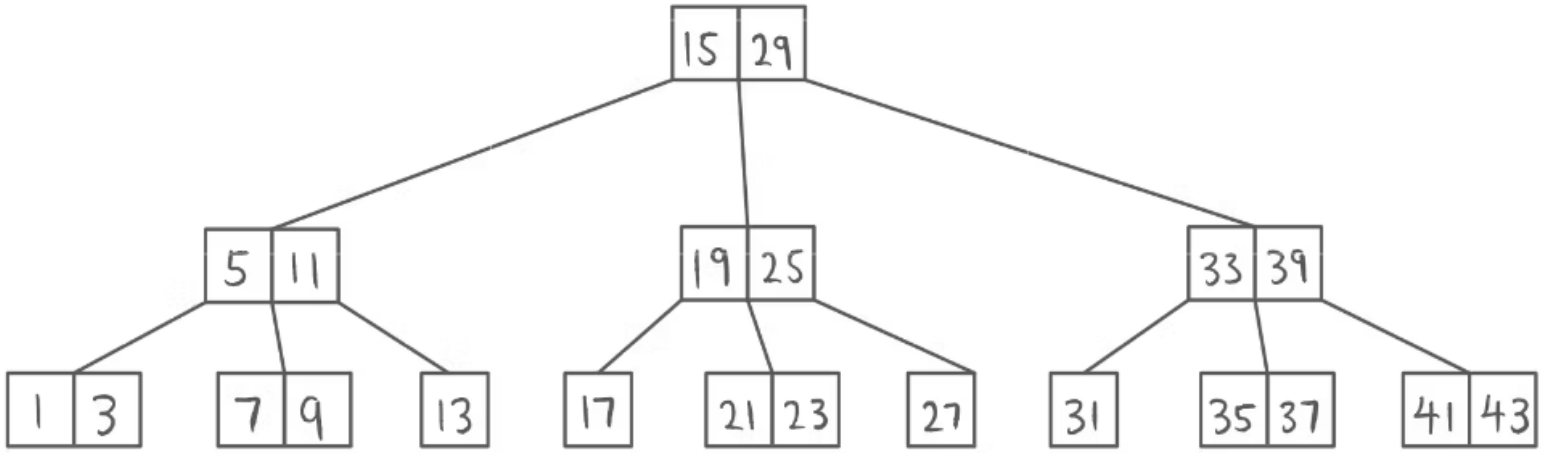
Exercise
2-3-4 Search Trees

Exercise 12 – 2-3-4 Trees

12.1 What type of tree is this?

A. BST
B. BTree
C. 2-3 Tree
D. 2-3-4 Tree
E. Binary Tree



Multiple Choice

Exercise 12 – 2-3-4 Trees

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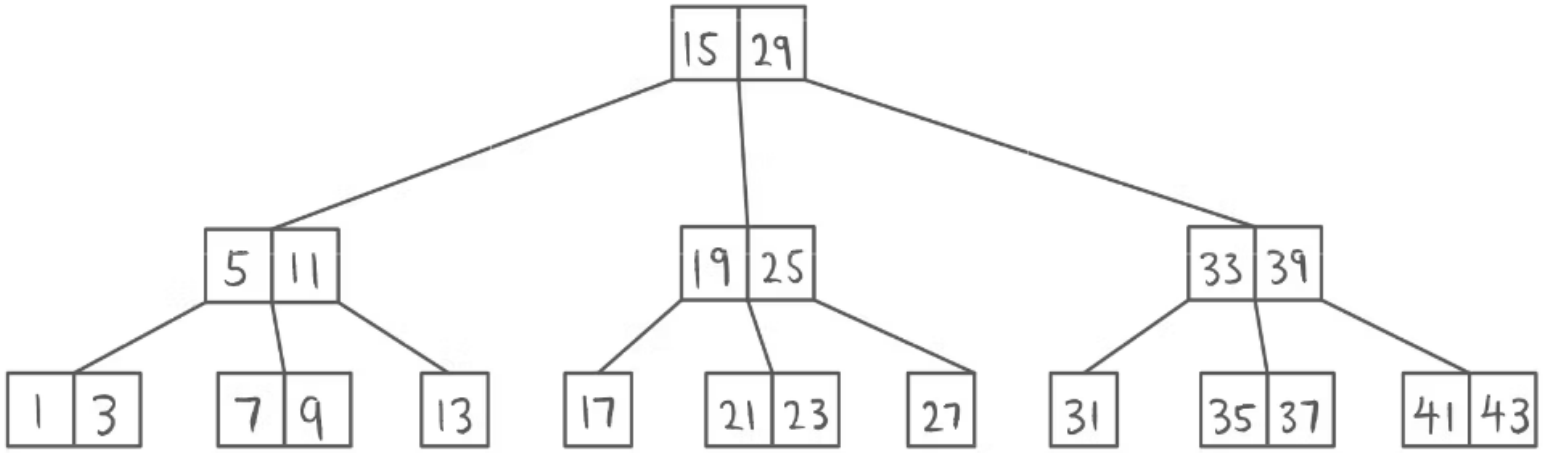
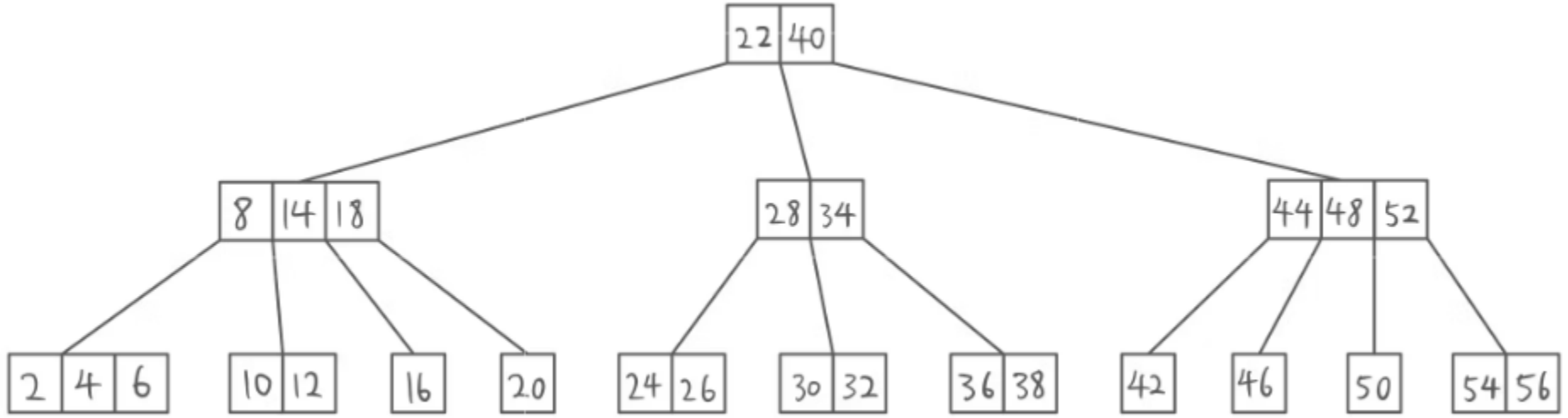


Exercise 12 – 2-3-4 Trees

12.2 Consider the following 2-3-4 tree, how many splits after inserting 5?

A. 0
B. 1
C. 2
D. 3
E. 4



Multiple Choice

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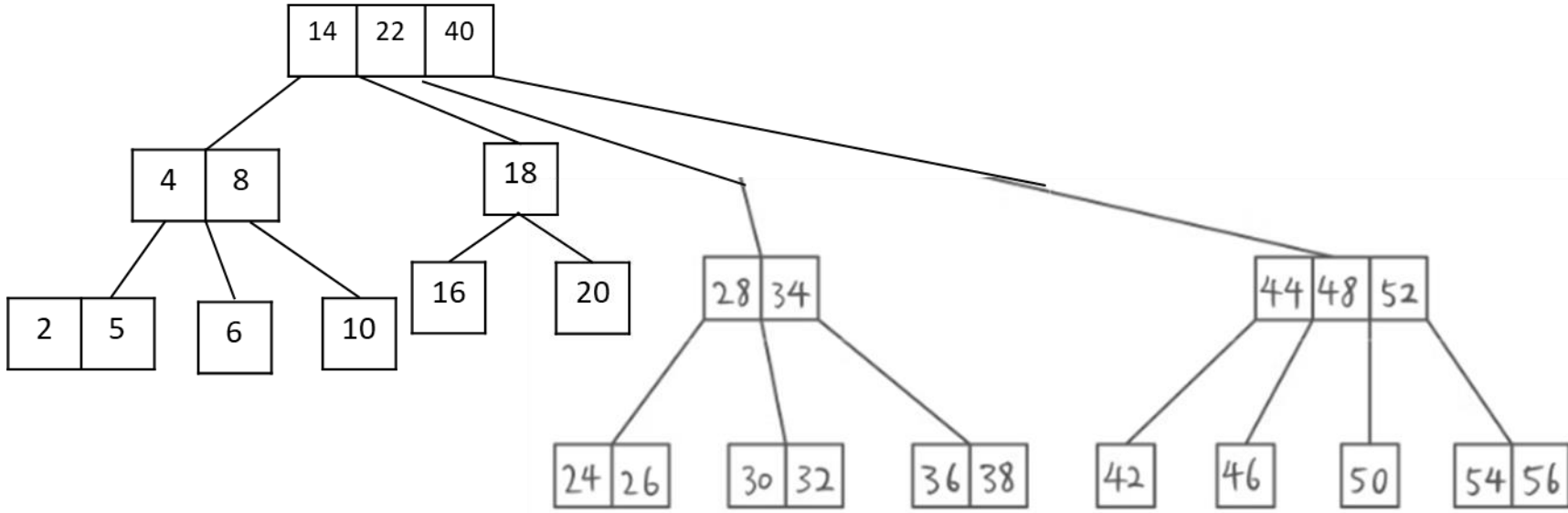
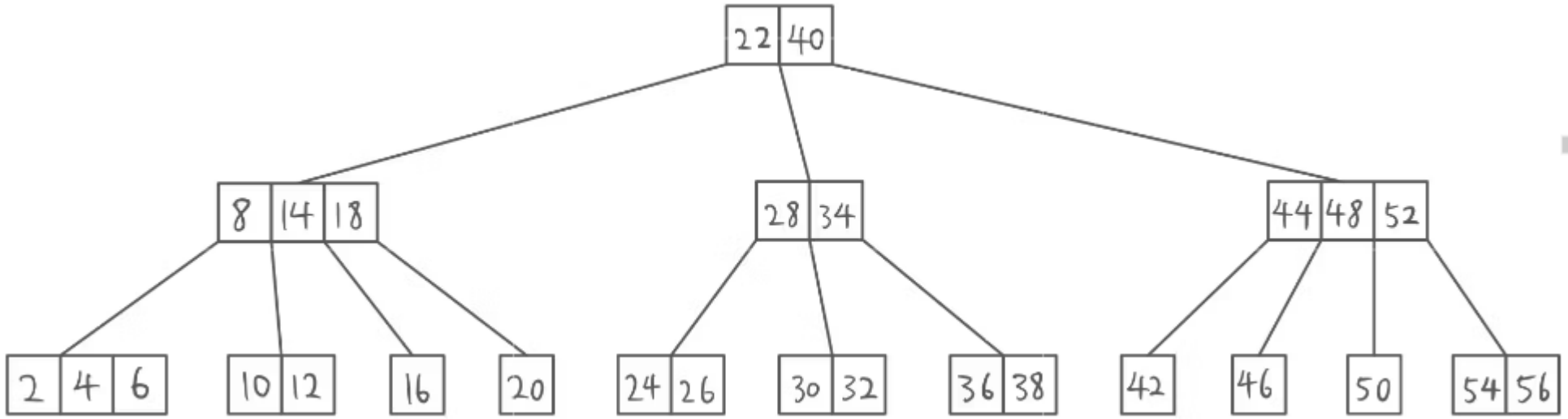


Exercise 12 – 2-3-4 Trees

12.3 Consider the following 2-3-4 tree, how many splits after inserting 37?

A. 0
B. 1
C. 2
D. 3
E. 4



Multiple Choice

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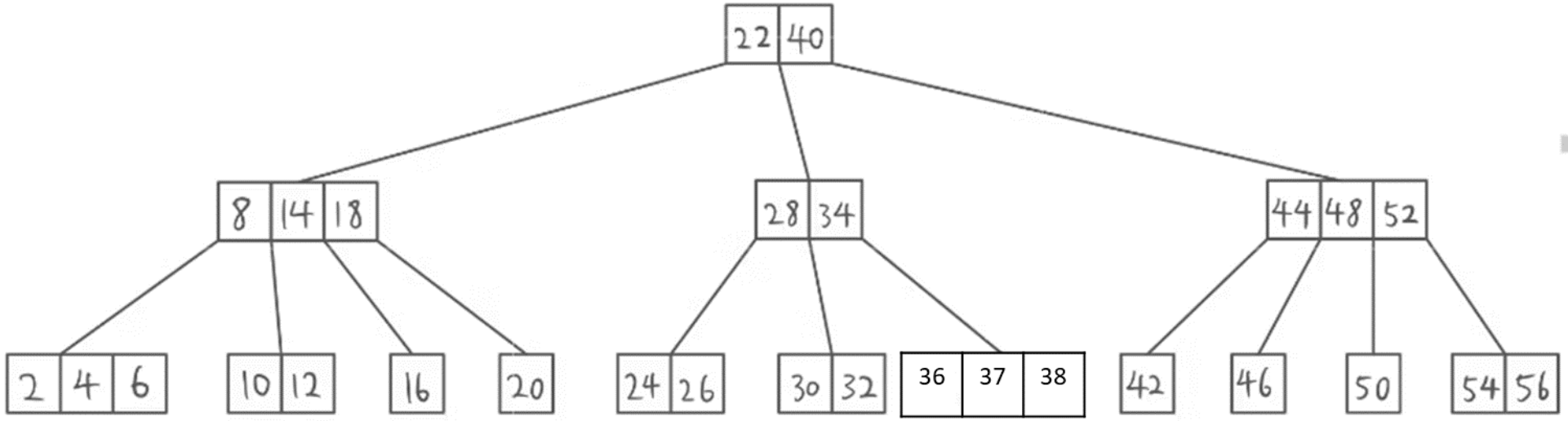
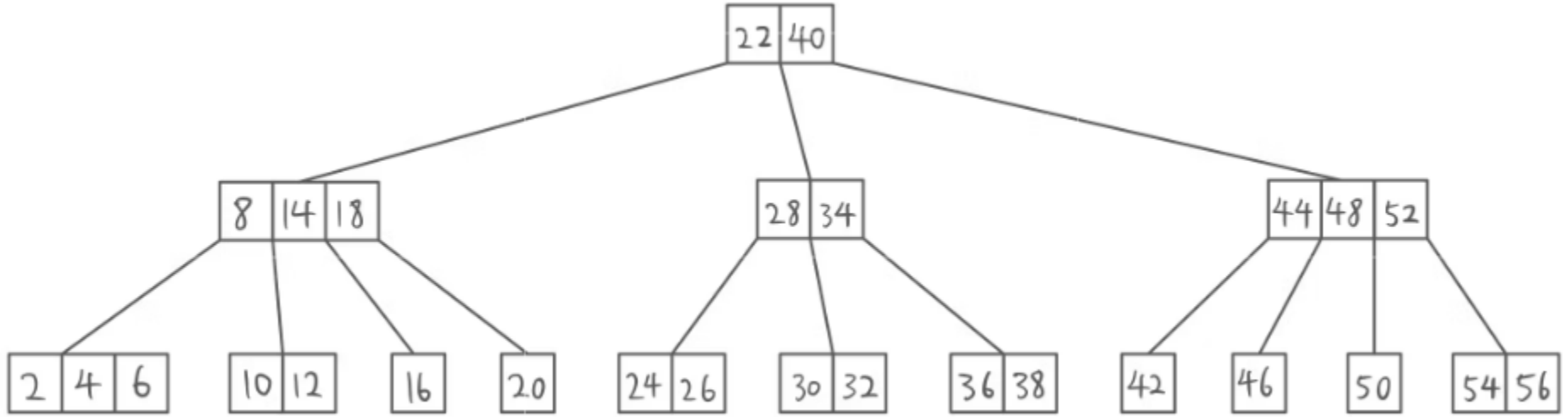


Exercise 12 – 2-3-4 Trees

12.4 Consider the following 2-3-4 tree, how many merges after removing 40?

A. 0
B. 1
C. 2
D. 3
E. 4

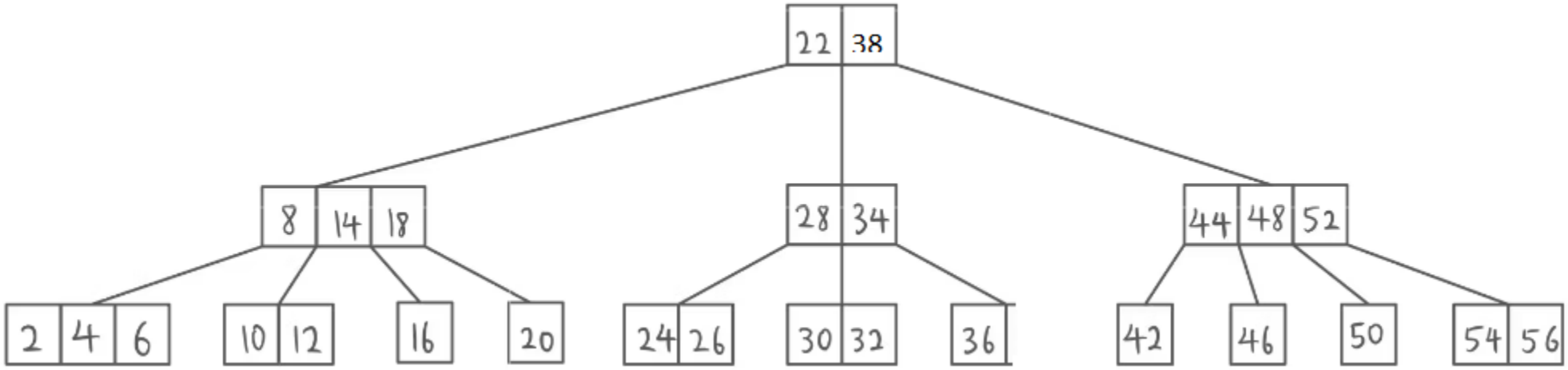


Multiple Choice

Exercise 12 – 2-3-4 Trees

12.4 Consider the following 2-3-4 tree, how many merges after removing 40?

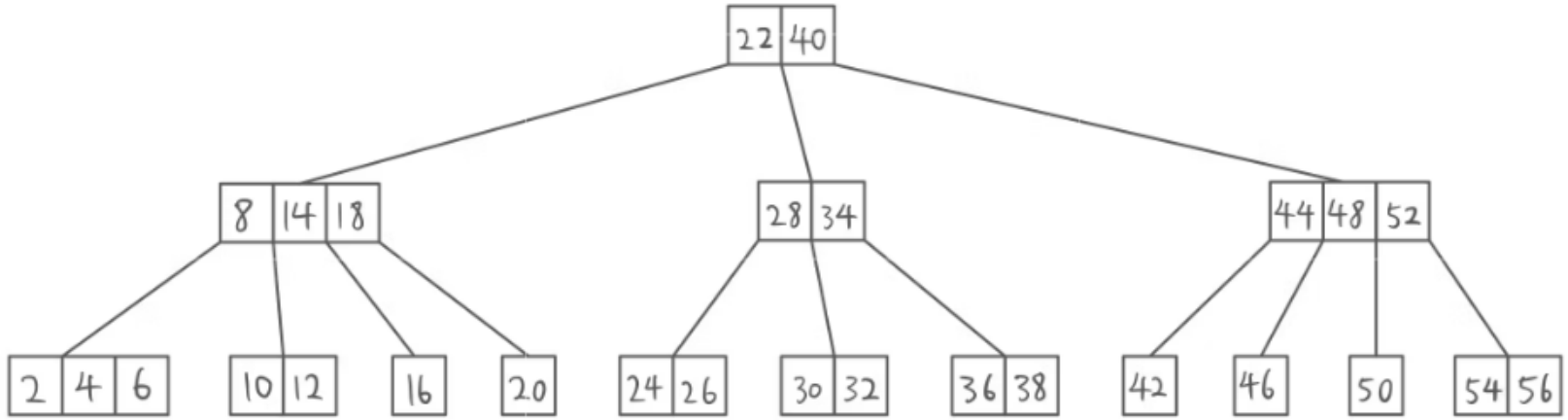
A. 0
B. 1
C. 2
D. 3
E. 4



Exercise 12 – 2-3-4 Trees

12.5 Consider the following 2-3-4 tree, which operation will be performed after removing 48?

A. Rotation
B. Merge
C. Split
D. None of the above



Multiple Choice

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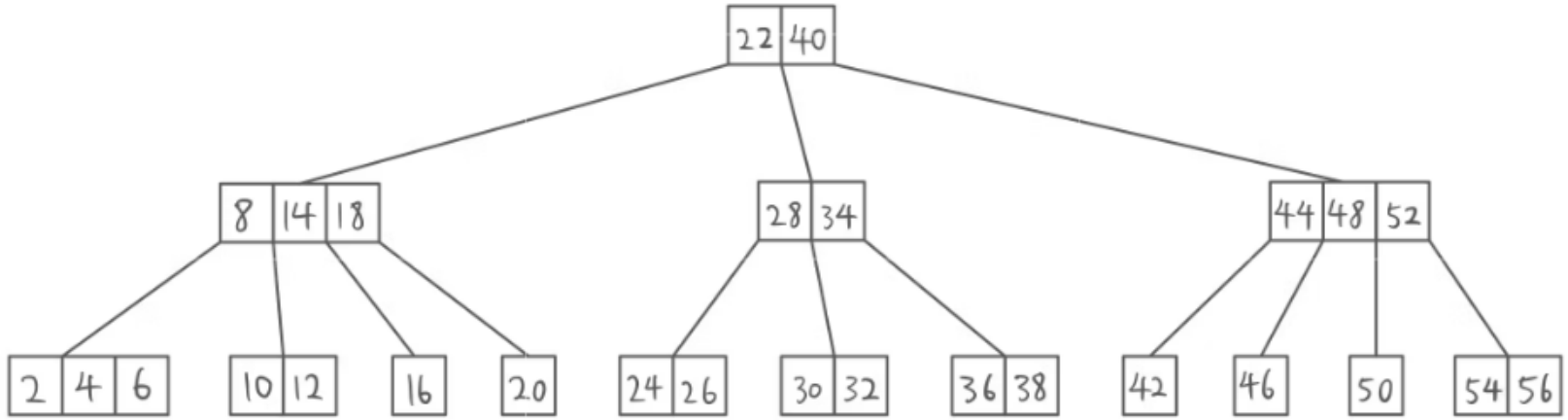
12.5 Consider the following 2-3-4 tree, which operation will be performed after removing 48?

A. Rotation
B. Merge
C. Split
D. None of the above

Exercise 12 – 2-3-4 Trees

12.6 Consider the following 2-3-4 tree, which operation will be performed after removing 14?

A. Rotation
B. Merge
C. Split
D. None of the above



Multiple Choice

Exercise 12 – 2-3-4 Trees

12.6 Consider the following 2-3-4 tree, which operation will be performed after removing 14?

A. Rotation
B. Merge
C. Split
D. None of the above

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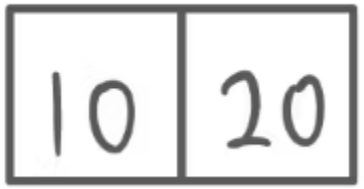
Exercise
Red BlackTrees

Exercise 12 – Red Black Trees

12.6 Consider the following 2-3-4 tree, how many RED nodes in its corresponding red-black tree

A. 1
B. 2
C. 3
D. 4
E. 5



Multiple Choice

Exercise 12 – 2-3-4 Trees

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A. 1
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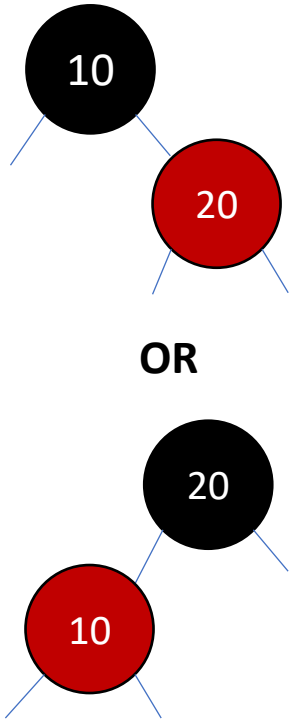
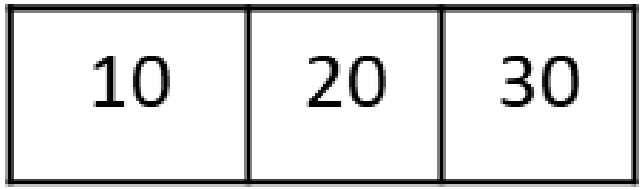


Exercise 12 – Red Black Trees

12.7 Consider the following 2-3-4 tree, how many RED nodes in its corresponding red-black tree

A. 1
B. 2
C. 3
D. 4
E. 5



Multiple Choice

Exercise 12 – Red Black Trees

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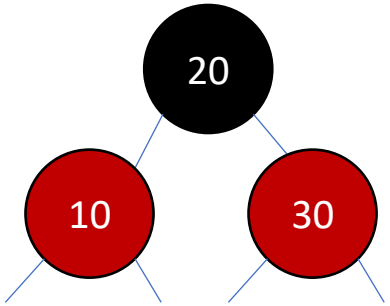
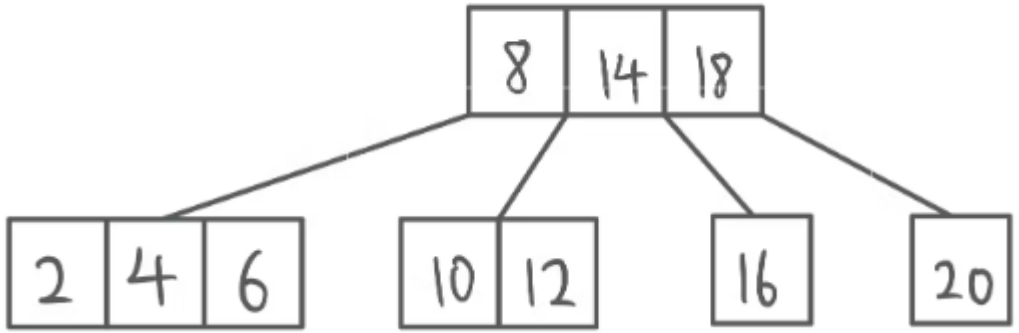


Exercise 12 – Red Black Trees

12.8 Consider the following 2-3-4 tree, how many RED nodes in its corresponding red-black tree

A. 1
B. 2
C. 3
D. 4
E. 5



Multiple Choice

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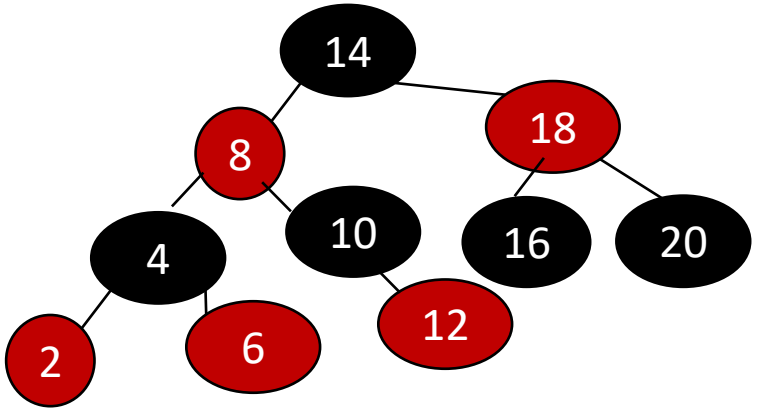
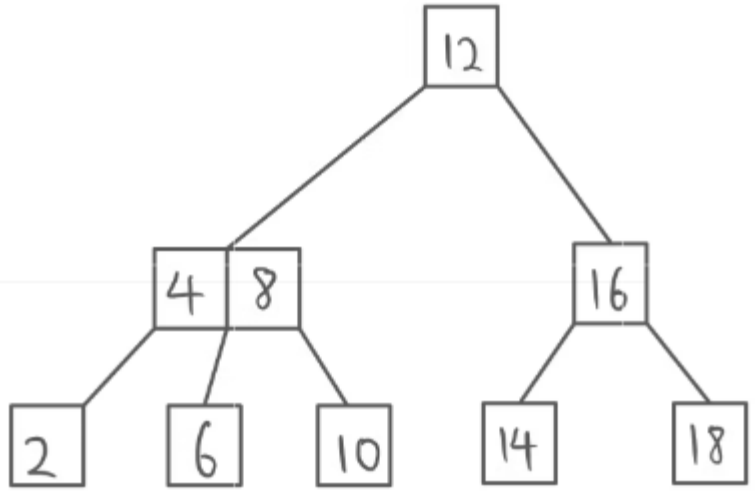


Exercise 12 – Red Black Trees

12.9 Consider the following 2-3-4 tree, how many RED nodes in its corresponding red-black tree

A. 1
B. 2
C. 3
D. 4
E. 5



Multiple Choice

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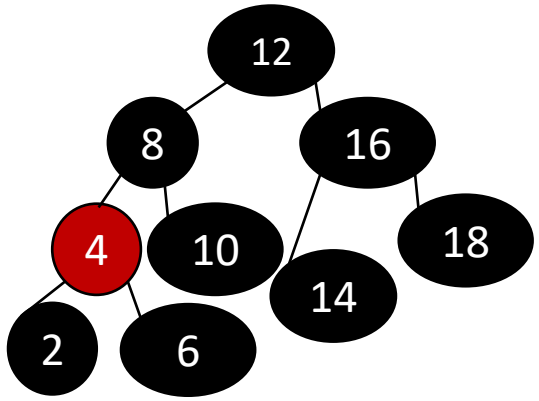

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