PROGRAMMING ADVICES

LEARN THE RIGHT WAY

26+ Years of Experience

Mohammed Abu-Hadhoud

MBA, PHOC, PgMP®, PMP®, PMI-RMP®, CIB, ITILF, MCPD, MCSD

لا تنسى الاشتراك في قناتنا على اليوتيوب ومشاركة القناة مع اصدقائك
لتعم الفائدة للجميع وانقاذ الاف الناس من التشتت وجزاكم الله خيرا

لا تنسونا من دعائكم وادعو لوالدي بالرحمة

www.ProgrammingAdvices.com

مهم جداً

هذا الملف للمراجعة السريعة واخذ الملاحظات عليه فقط، لانه يحتوي على اقل من 20% مما يتم شرحه في الفيديوهات

الاستعجال والاعتماد عليه فقط سوف يجعلك تخسر كميه معلومات وخبرات كثيره

يجب عليك مشاهدة فيديو الدرس كاملا

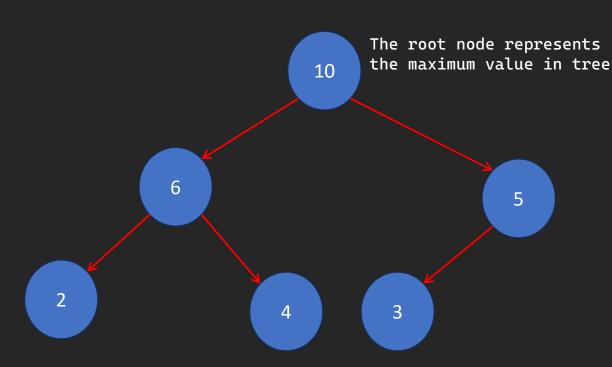لاتنسى عمل لايك ومشاركة القناة لتعم الفائدة للجميع

لا تنسونا من دعائكم

ProgrammingAdvices.com

Mohammed Abu-Hadhoud
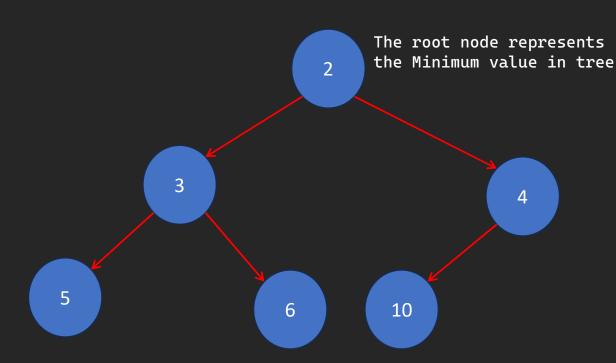
Max-Heap

The root node represents the maximum value in tree

- Node is always greater or equal than its child node/s.
- The key of the root node is the largest among all other nodes.
- Satisfies the Max heap property

Mohammed Abu-Hadhoud
MBA, PMOC, PgMPD, PMPD, PMI-RMPD, CM, ITILF, MCPD, MCSD
26+ years of experience

Min-Heap

2

The root node represents
the Minimum value in tree

3

4

5

6

10

- Node is always smaller
  or equal than its child
  node/s.
- The key of the root node
  is the smallest among
  all other nodes.
- Satisfies the Min heap
  property

Mohammed Abu-Hadhoud
MBA, PMOC, PgMPD, PMPD, PMI-RMPD, CM, ITILF, MCPD, MCSD
26+ years of experience

Heap Data Structure

- Heap data structure is a complete binary tree that satisfies the heap property, where any given node is:
  - Always greater than its child node/s and the key of the root node is the largest among all other nodes. This property is also called <u>max heap property</u>.

  - Always smaller than the child node/s and the key of the root node is the smallest among all other nodes. This property is also called <u>min heap property</u>.

Mohammed Abu-Hadhoud
MBA, PMOC, PgMPD, PMPD, PMI-RMPD, CM, ITILF, MCPD, MCSD
26+ years of experience

Types of Heaps

- Max-Heap: The root node contains the largest element, and every parent node is greater than or equal to its children.

- Min-Heap: The root node contains the smallest element, and every parent node is less than or equal to its children.

- This type of data structure is also called a binary heap.

Mohammed Abu-Hadhoud
MBA, PMOC, PgMPD, PMPD, PMI-RMPD, CM, ITILF, MCPD, MCSD
26+ years of experience

Efficiency of Access and Organization

- Heaps allow for constant-time access to the smallest or largest element (O(1)), which is crucial for priority-based tasks.

- Insertions and deletions in heaps take O(log n) time due to the tree structure, where elements are only rearranged as needed to maintain the heap property.

Mohammed Abu-Hadhoud
MBA, PMOC, PgMPD, PMPD, PMI-RMPD, CM, ITILF, MCPD, MCSD
26+ years of experience

Heap Data Structure Applications

- Heap is used while implementing a priority queue.
- Heap Sort.
- Other algorithms.

Mohammed Abu-Hadhoud
MBA, PMOC, PgMPD, PMPD, PMI-RMPD, CM, ITILF, MCPD, MCSD
26+ years of experience

ProgrammingAdvices.com

Thank You

Mohammmed Abu-Hadhoud

26+ Years of Experience

MBA, PMOC, PgMP®, PMP®, PMI-RMP®, CM, ITILF, MCPD, MCSD

PROGRAMMING ADVICES
LEARN THE RIGHT WAY