



## DATA STRUCTURES II

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► *binary heap demo*

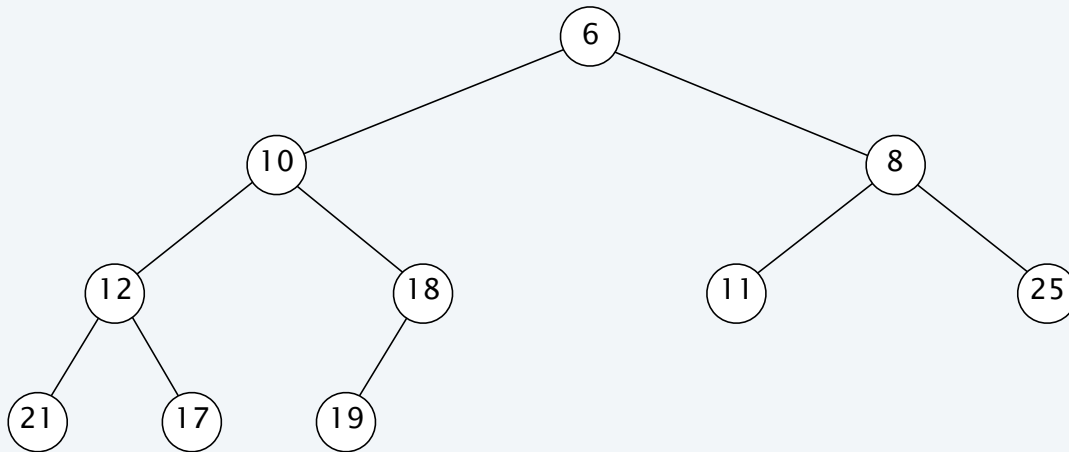
Lecture slides by Kevin Wayne

<http://www.cs.princeton.edu/~wayne/kleinberg-tardos>

# Binary heap demo

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heap ordered

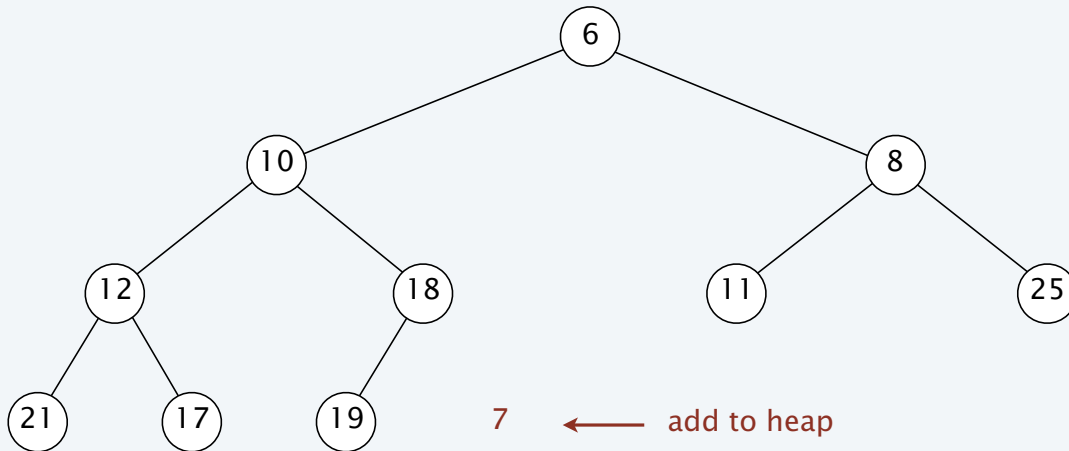


# Binary heap demo

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**Insert.** Add node at end; repeatedly exchange element in child with element in parent until heap order is restored.

**insert 7**

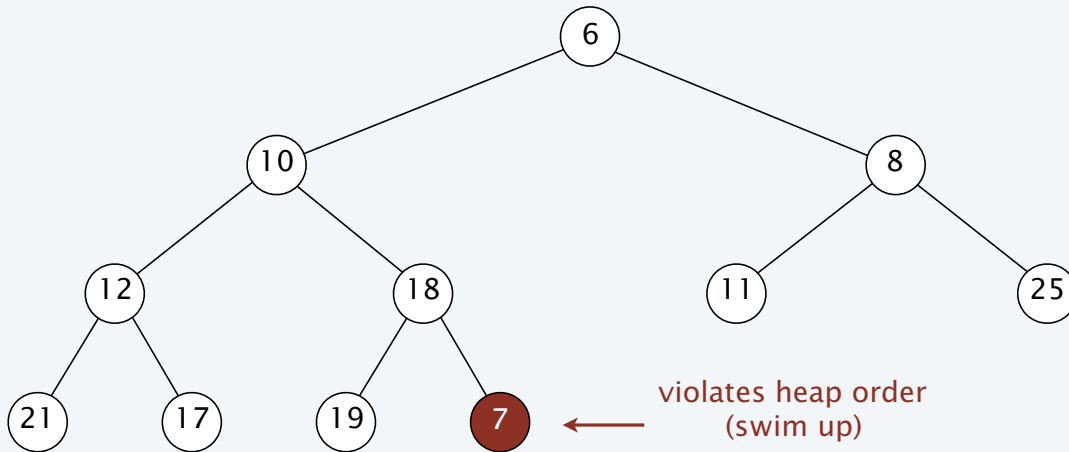


# Binary heap demo

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**Insert.** Add node at end; repeatedly exchange element in child with element in parent until heap order is restored.

**insert 7**

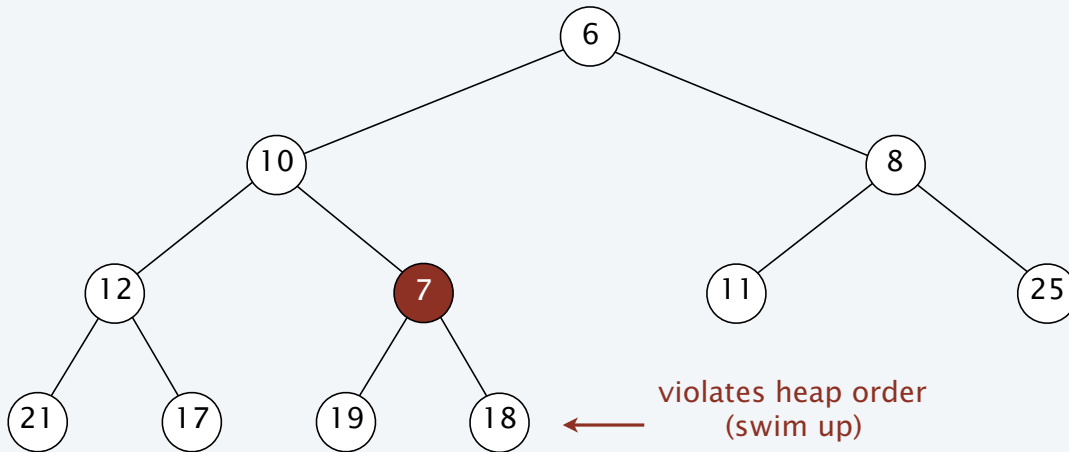


# Binary heap demo

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**insert 7**

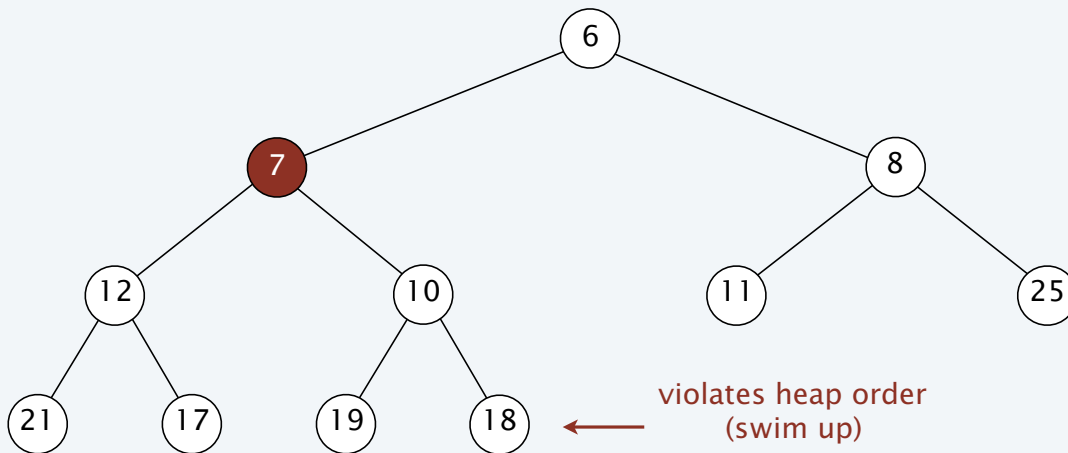


# Binary heap demo

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**Insert.** Add node at end; repeatedly exchange element in child with element in parent until heap order is restored.

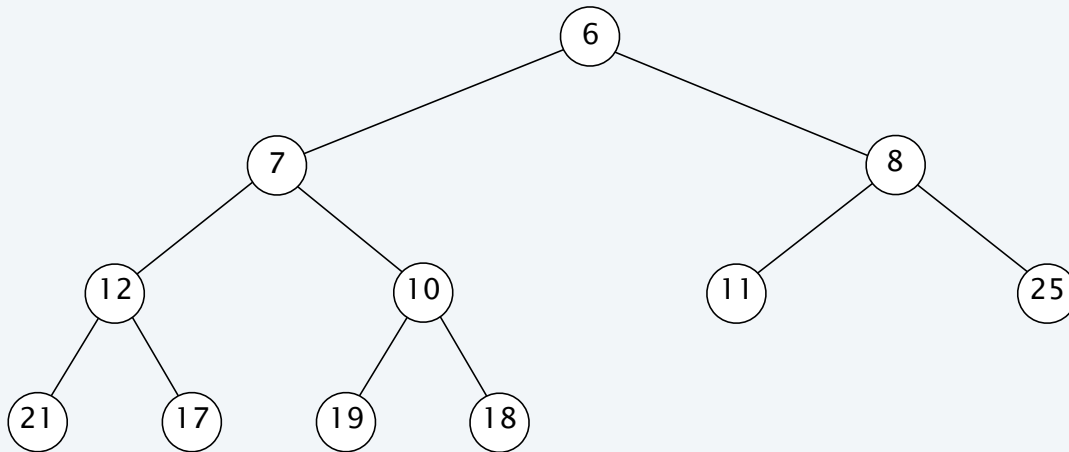
**insert 7**



# Binary heap demo

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heap ordered

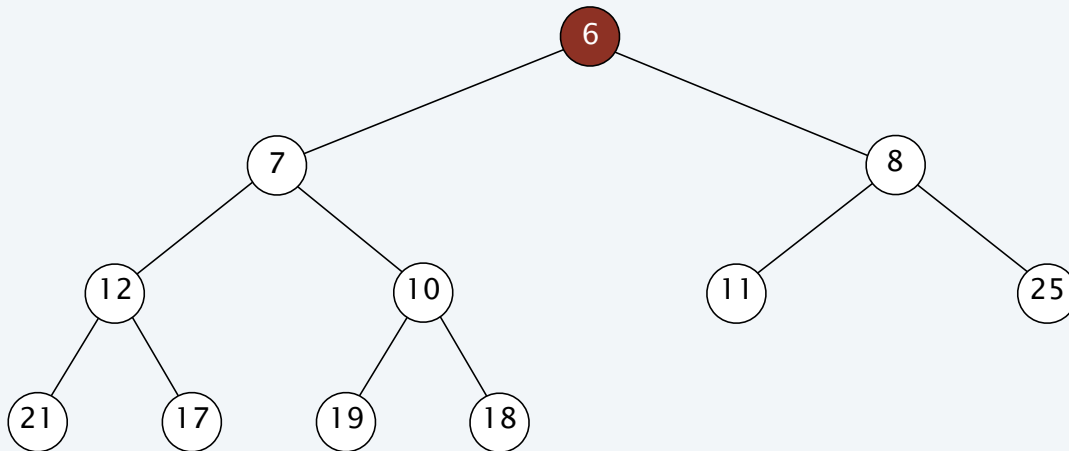


# Binary heap demo

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**Extract min.** Exchange root node with last node; repeatedly exchange element in parent with element in larger child until heap order is restored.

**extract the minimum**



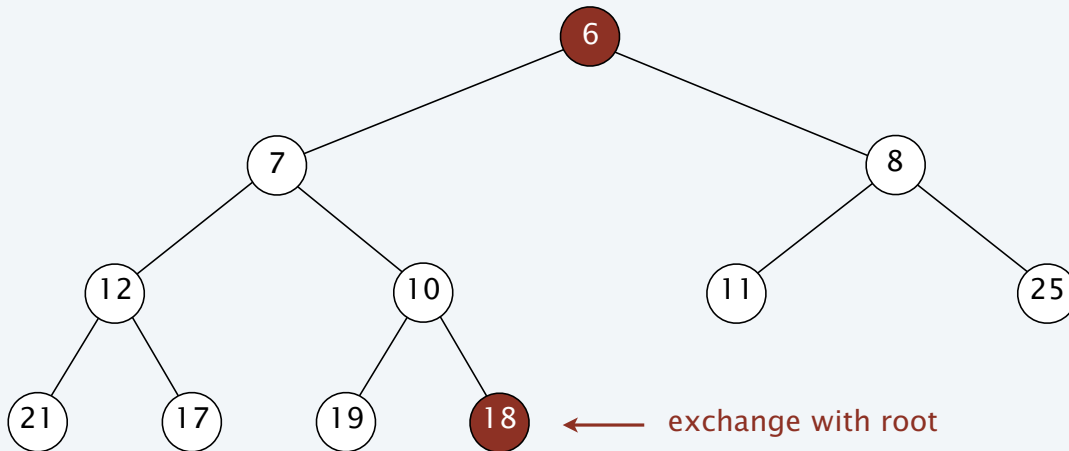


# Binary heap demo

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**extract the minimum**

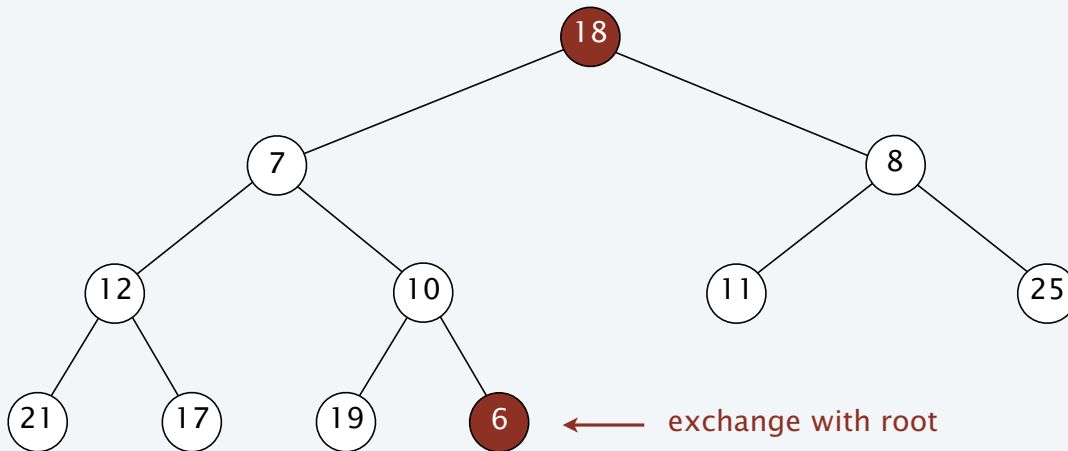


# Binary heap demo

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**extract the minimum**

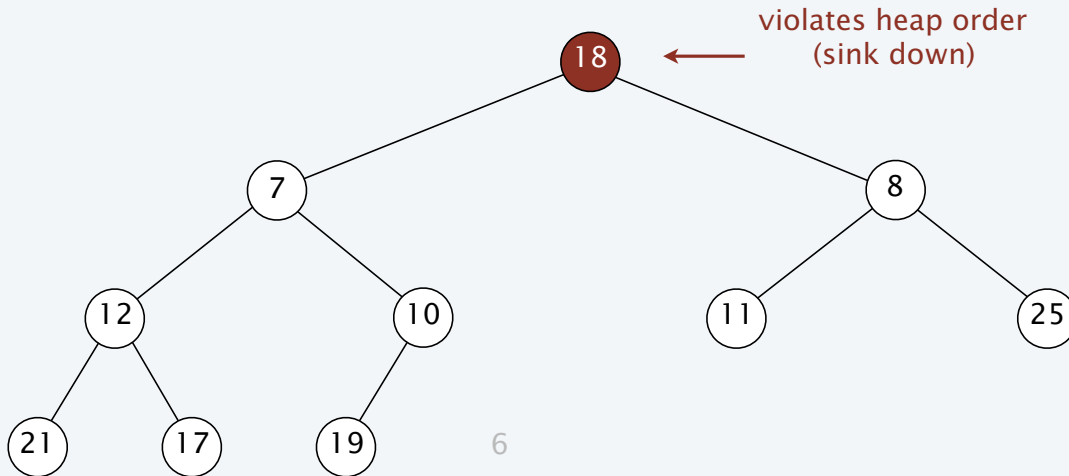


# Binary heap demo

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**Extract min.** Exchange root node with last node; repeatedly exchange element in parent with element in larger child until heap order is restored.

**extract the minimum**

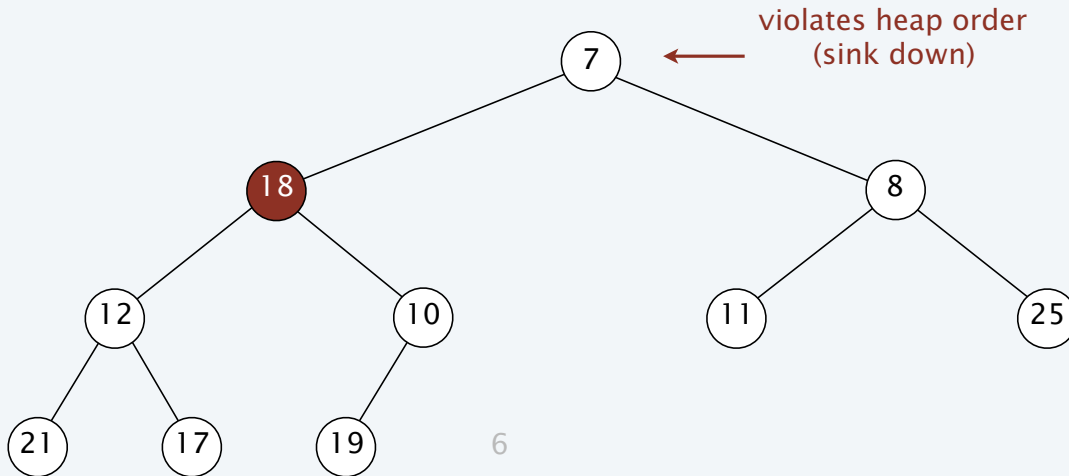


# Binary heap demo

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**extract the minimum**

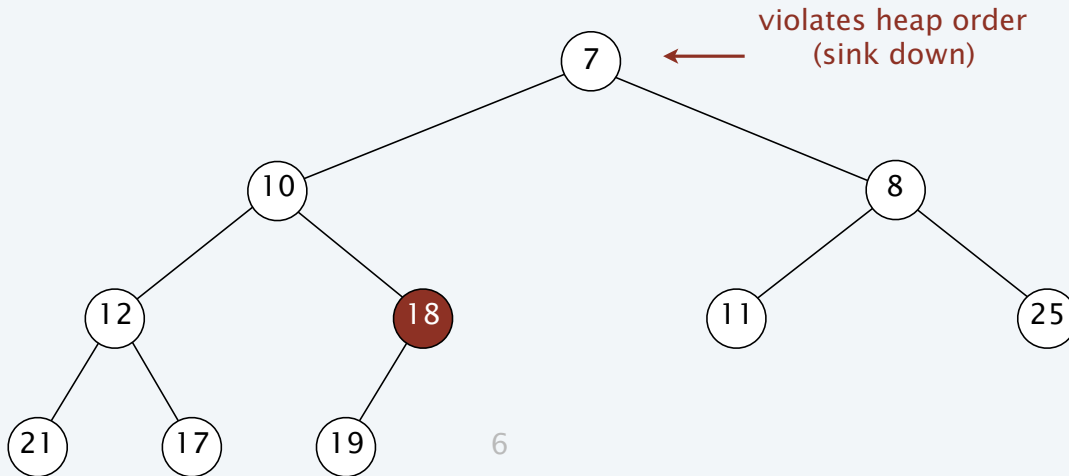


# Binary heap demo

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# Binary heap demo

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heap ordered

