

Binary Trees, Binary Search Trees, and Heaps

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 - ▶ Corresponds to using all the items in 0 to size-1.



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 - ▶ If you are looking for a key, compare it to root item.
 - ▶ If it is equal, you have found it.



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- ▶ For example, at a hospital emergency room serve in order of minutes until death.



More notes



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Worst case for search trees



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- ▶ We will do a b-tree in prog10.



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 - ▶ Swap with a child up to $\log_2 n$ times
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- ▶ **peek** is obviously $O(1)$.



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- ▶ Tree is like list but with up to two successors per item called *left* and *right*.



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- ▶ Tree is like list but with up to two successors per item called *left* and *right*.
- ▶ New terms: *root*, *leaf*, *child*, *parent*, *subtree*, *depth*, *height*.
- ▶ Linked representation is pretty obvious.
- ▶ Array representation is a bit more tricky.



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