

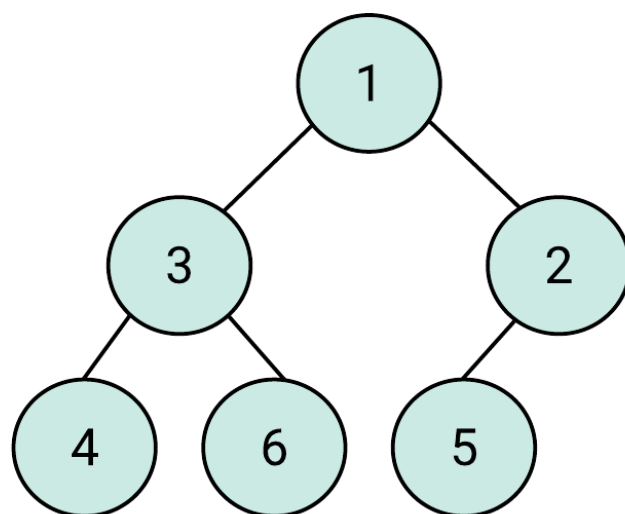
Week 10 Tutorial

Heaps and Tries

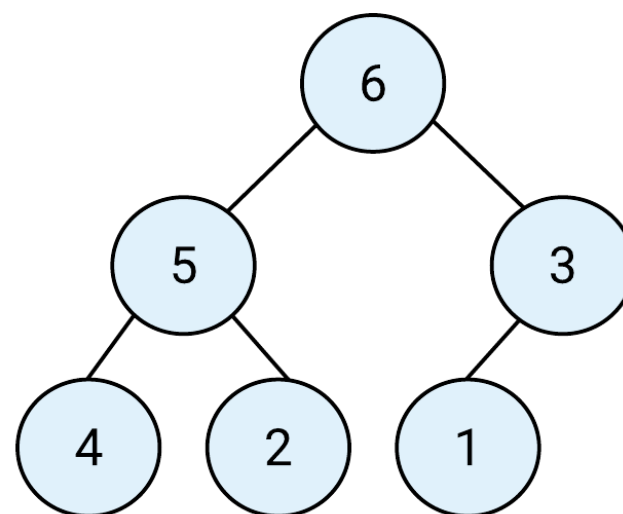
Heaps

Binary heap: a binary tree with top to bottom ordering

- Maximum heap: parent nodes have a value \geq child nodes value
- Minimum heap: parent nodes have a value \leq child nodes value
- All level of trees must be filled except for the bottom, which is filled left to right
- Useful for priority queues



Min heap



Max Heap

A heap is stored in an array

Let an item be at index i

- left child: index $2i$
- right child: index $2i + 1$
- parent: index $\text{floor}(i/2)$

Tries

- A data structure used to represent strings, where each letter is a node in the trie
- Red nodes mark the end of words