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Lab Section 040
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Splay tree

This method of maintaining a balanced binary search tree rotates the tree such that the requested node becomes the root. These rotations are the same rotations used in AVL trees. Splay trees are useful if the same data is required a lot. If the same data is called twice in a row, it can be returned immediately the second time it is called for. Generally, the more requested data is found near the top of the tree and the less requested data is found near the bottom.

Treap

A treap is a binary search tree that creates a balanced tree by simulating the creation of a randomly generated binary search tree. Every node not only contains the data, but it also contains a priority. These priorities decrease as you move down the tree with the highest priority being the root. When a new node is added to the tree, it is added so that the structure of the binary search tree is preserved. However, the node is also given a random priority and tree rotations are used to ensure the priority structure is maintained. By generating random priorities, trees are able to stay balanced because there is a small chance they will be given a priority that creates an unbalance.