Cheatography

Algos Cheat Sheet

by dkarp via cheatography.com/138422/cs/29143/

Binary search - on sorted list - LogN

```
def bsearch(arr, target):
    left, right = 0, len(arr) - 1
    while left <= right:
        mid = (left + right) // 2
        val = arr[mid]
        if val == target:
            return mid
        elif val > target:
            right = mid - 1
        else:
            left = mid + 1
    return -1
```

Heap - LogN

```
import heapq
def heap_min(arr):
    heapq.heapify(arr)
    return arr[0]
def heap_max(arr):
    heaparr = []
    for val in arr:
        heapq.heappush(heaparr, -1 * val)
    return -1 * heaparr[0]
```

DFS - preorder - N

```
def dfs(root, target):
    def search(node):
        if not node:
            return
        if node.val == target:
            return node
        left = search(node.left)
        if left:
            return left
        right = search(node.right)
        if right:
            return right
    return search(root)
```

BFS - N

```
def bfs(root, target):
    queue = [root]
    while queue:
        node = queue.pop()
        if not node:
            continue
        if node.val == target:
            return node
        queue.append(node.left)
        queue.append(node.right)
    return None
```

Collections

defaultdict	defaultdict(default_factory=None)
namedtuple	namedtuple('Point', ['x', 'y'])
deque	deque([iterable[, maxlen]])
	append(x)
	appendleft(x)
	pop()
	popleft()
Counter	Counter([iterable-or-mapping])
	most_common(n)
	subtract([iterable-or-mapping])

Python Slices

Slice	a[start:stop:step]
Elements after X	a[x:]
First X elements	a[:x]
Last X elements	a[-x]
Elements from X to Y not inclusive of Y	a[x:y]
Reverse List	a[::-1]

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