

Maps & Dictionaries

→ python dict class is very significant; offers unique abstraction of a dictionary in which unique keys are mapped to associated values

→ Map ADT:

- $M[k]$: return value associated with key k in map M
- $M[k] = v$: associate value v with key k in map M
- $M.get(k, d=None)$: return $M[k]$ if k exists, else return d
- $M.setdefault(k, d)$: if key exists, return $M[k]$; else, set $= d$
- $M.pop(k, d=None)$: remove item; if key not in map return $None$

Counting Word Frequencies

- break apart original doc using file & string methods that creates a loop to stream a lowercase version of all separated pieces of document
- use python dictionary to track

```
freq = {}
```

```
for piece in open(filename).read().lower().split():
```

```
    word = ''.join(c for c in piece if c.isalpha())
```

```
    if word:
```

```
        freq[word] = freq.get(word, 0) + 1
```

```
maxCount = 0, maxWord = ''
```

```
for (w, c) in freq.items():
```

```
    if c > maxCount:
```

```
        maxWord = w
```

Mutable Mapping

→ collections module provides 2 abstract base classes relevant to current discussion:

- Mapping: includes all nonmutating methods supported by dict class
- MutableMapping: extends mapping to include mutating methods