

# Dictionaries

- Have already seen these:  $D = \{ 'a' : 1, 'b' : 2, 'c' : 3 \}$
- Similar to sets, but instead of just storing an element in the hash table, store two elements
- First element is used for lookups (key), second is the associated data (value)
- $O(1)$  lookup,  $O(1)$  insert/delete
- Same restrictions on hashing as sets

# Strings

- Stored as an array of characters (accessible using the same slicing and indexing syntax as lists)
- Immutable: cannot modify elements at a given index
  - Example: `s = 'abc'`; cannot do `s[0] = 'd'` or `s.append('x')`
- Good for serializing/flattening data structures
- May be the most commonly used data structure - all code, text, etc. is just strings of characters at the end of the day