Introduction to Computer Programming
CSCI-UA 2

Data Structures
Dictionaries
Dictionaries

{key: value}

A dictionary is a data structure for storing pairs of values.

Values can be accessed by their keys.

Like lists, dictionaries are mutable.

Keys are unique and cannot be repeated within a dictionary.

Keys must be immutable and cannot be a list or dictionary.

Values are, however, mutable.
Dictionaries

Methods

d.items()

d.keys()

d.values()

d.get(key)

d.pop(key)

d.popitem()

d.clear()

d.copy()

d.fromkeys(s, t)
Lists vs. Dictionaries

Order
• Lists are ordered
• Dictionaries are unordered

Access
• Lists require a numeric index to access individual items
• Dictionary values are accessed by their unique key

General Guideline
• If order matters, use a list
• If you need to access values with a unique key, use a dictionary
Tuples

( )

(1, 2.0, 'three')

A tuple is an immutable sequence of 0 or more values

Enclosed in round brackets, items separated by a comma

Tuples with a single item must be followed by a comma: (x,)

Once created, it cannot be changed, which can help prevent errors

Use indexing and slicing to access individual elements
Sets

set()

A set is a collection of 0 or more items with no duplicates.

A good way to remove duplicates from a sequence.

Two categories: mutable sets and immutable frozensets.
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Lists and Dictionaries