Python Collections

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List (Chapter 11)

A list is an ordered collection of values. The values that make up a list are called its elements, or its items. We will use the term element or item to mean the same thing.

Lists are similar to strings, which are ordered collections of characters, except that the elements of a list can be of any type.

Lists and strings — and other collections that maintain the order of their items — are called sequences

example:

```
mylist = ["apple", "banana", "cherry"]
```

List

Lists are used to store multiple items in a single variable

- Ordered

- Changeable

- Allow Duplicates

- First item is `index = 0`

Dictionary (Chapter 20)

Dictionaries are Python's built-in mapping type.

They map keys, which can be any immutable type, to values, which can be any type (heterogeneous), just like the elements of a list or tuple.

In other languages, they are called associative arrays since they associate a key with a value.

example:

```
thisdict = {
    "brand": "Ford",
    "model": "Mustang",
    "year": 1964
}
```

Dictionary

Dictionaries are used to store data values in key:value pairs.

- Ordered (from 3.7+)

- Changeable

- Don't Allow Duplicates

- Access by key

```
print(my_diccionary["key"])
```

Tuples (Chapter 9)

In Python a tuple can be used to group any number of items into a single compound value.

Syntactically, a tuple is a comma-separated sequence of values.

Although it is not necessary, it is conventional to enclose tuples in parentheses:

example:

```
julia = ("Julia", "Roberts", 1967, "Duplicity", 2009 )
```

Tuple

Tuples are used to store multiple items in a single variable.

- Ordered

- Unchangeable

- Allow Duplicates

- Access by index

```
print(my_tuple[0])
```

Sets

Sets are used to store multiple items in a single variable.

Sets can also be used to perform mathematical set operations like union, intersection, symmetric difference, etc.

example:

```
thisset = {"apple", "banana", "cherry"}
```

Sets

- **Un**Ordered

- **Un**changeable

- Don't Allow Duplicates