Dictionaries Cheat Sheet

A Python dictionary (`dict`) is a special container type. It contains a collection of `items`, which are called **key-value pairs** and have the following form

```
key: val
```

The `key` in an item must be an *immutable* object and the `val` can be any type of object. The items contained in a dictionary are delimited by curly braces ( `{` and `}` ) and separated by commas. For example,

```
A = {'CA': 38332521, 'TX': 26448193, 'MI': 9895622}
```

creates a new `dict` containing 3 items and assigns variable `A` a reference to it.

The keys in a dictionary are used to retrieve and update values and create items.

- When `a_dict[k]` is used as an expression:
  
  If `a_dict` contains an item whose key equals `k`, then `a_dict[k]` returns the value in this item; or, if `a_dict` does not contain an item whose key equals `k`, then `a_dict[k]` returns an error.

- You can assign a value to `a_dict[k]`, e.g., `a_dict[k] = exp`
  
  If `a_dict` contains an item whose key equals `k`, then the value in this item is replaced with the value of `exp`; or, if `a_dict` does not contain an item whose key equals `k`, then an item with key equal to `k` and value equal to `exp` is created and added to `a_dict`.

A `dict` is iterable; but you iterate through a `dict` using its keys.

- `exp in a_dict`: returns `True` if `exp` is a key in `a_dict`; and `False`, otherwise.

- `for var in a_dict`: iterates through the keys of `a_dict`, assigning each key to `var` in its turn and executing the associated suite

```
len(a_dict): returns the number of items in a_dict
max(a_dict): returns the maximum key in a_dict
min(a_dict): returns the minimum key in a_dict

a_dict.keys(): returns an iterable containing the keys in a_dict
a_dict.values(): returns an iterable containing the values in a_dict
a_dict.items(): returns an iterable containing the items in a_dict
del a_dict[exp]: deletes the item in a_dict whose key equals exp
```