ZIP

The **zip()** function combines two iterables, like lists, into a single iterator of tuples

- first_iterable[0] gets paired with second_iterable[0], and so on

```
item_list = ['skis', 'snowboard', 'goggles', 'boots']
price_list = [249.99, 219.99, 99.99, 79.99]
inventory = [10, 0, 0, 7]

zip(price_list, inventory)
```

```
<zip at 0x7fb0f012f580>
```

Here, we're zipping together two lists and returning a ***zip object*** that contains the instructions for pairing the ith object from each iterable

```
item_attributes = list(zip(price_list, inventory))

item_attributes
```

```
[(249.99, 10), (219, 0), (99, 0), (99.99, 7)]
```

When you create a list from the zip object, you get a list with the ith element from each iterable paired together in a tuple

```
list(zip(item_list, price_list, inventory))
```

```
[('skis', 249.99, 10),
 ('snowboard', 219, 0),
 ('goggles', 99, 0),
 ('boots', 99.99, 7)]
```

Any number of iterables can be combined this way

ZIP

The **zip()** function is commonly used to build dictionaries

```python
item_details = [[249.99, 10, 'in stock'],
                [219.99, 0, 'sold out'],
                [99.99, 0, 'sold out'],
                [79.99, 7, 'in stock']]

item_names = ['skis', 'snowboard', 'goggles', 'boots']

item_dict = dict(zip(item_names, item_details))

item_dict
```

```python
{'skis': [249.99, 10, 'in stock'],
 'snowboard': [219.99, 0, 'sold out'],
 'goggles': [99.99, 0, 'sold out'],
 'boots': [79.99, 7, 'in stock']}
```

*When creating a dictionary from the zip object, the elements of the first iterable become the **keys**, and the second become the **values***

```python
dict(zip(item_list, price_list, inventory))
```

```python
ValueError: dictionary update sequence element #0 has length 3; 2 is required
```

Note that you can only create a dictionary from a zip object with two iterables

```python
item_dict = dict(zip(item_list, zip(price_list, inventory)))

item_dict
```

```python
{'skis': (249.99, 10),
 'snowboard': (219, 0),
 'goggles': (99, 0),
 'boots': (99.99, 7)}
```

But you can zip iterables together within the second argument