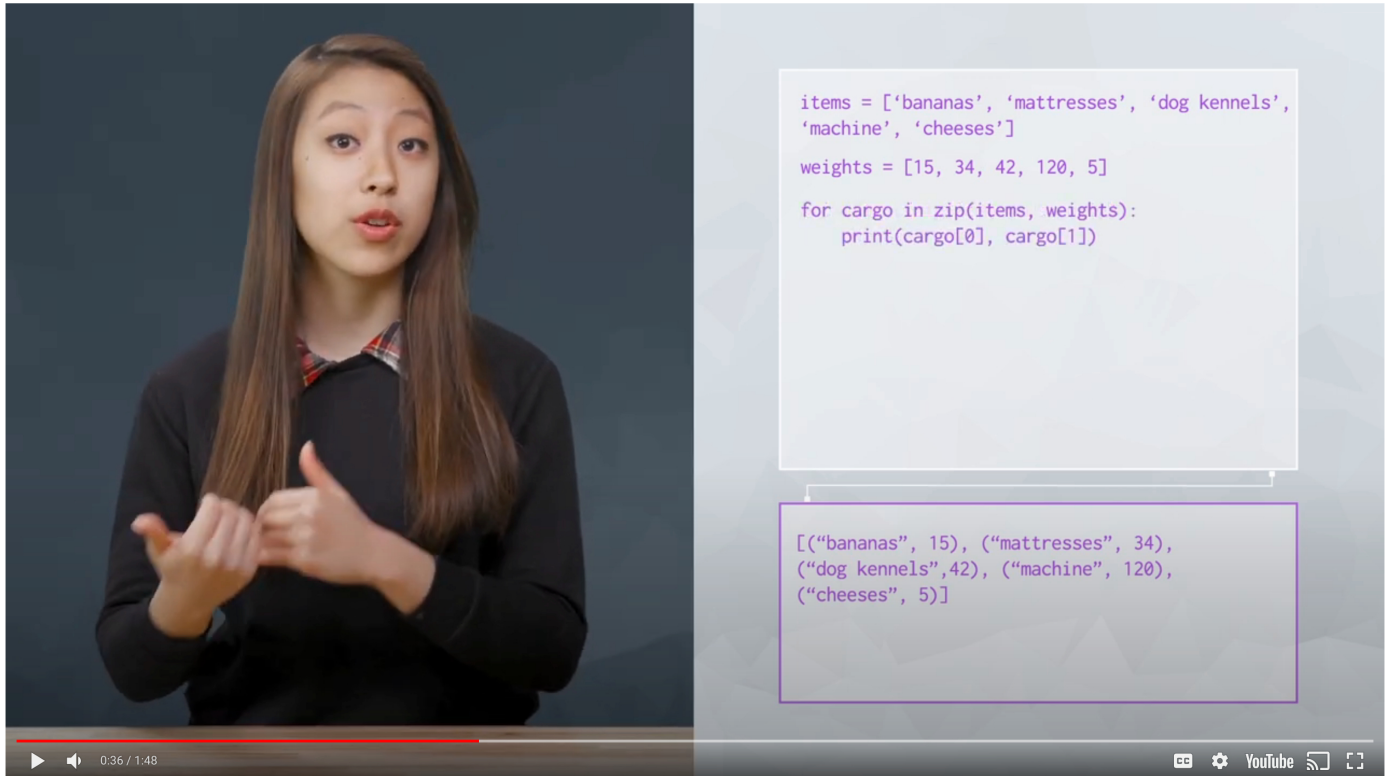


Zip and Enumerate



The video player shows an instructor on the left and a code snippet on the right. The code snippet is as follows:

```
items = ['bananas', 'mattresses', 'dog kennels',
        'machine', 'cheeses']
weights = [15, 34, 42, 120, 5]
for cargo in zip(items, weights):
    print(cargo[0], cargo[1])
```

Below the code snippet, a list of tuples is shown, representing the output of the zip function:

```
[("bananas", 15), ("mattresses", 34),
 ("dog kennels", 42), ("machine", 120),
 ("cheeses", 5)]
```

In the video above, at the 0:55 mark, the instructor says "... you can separate it into an items and weights list, like this," but she should instead say, "... you can separate it into an items *tuple* and a weights *tuple*, like this."

Zip and Enumerate

`zip` and `enumerate` are useful built-in functions that can come in handy when dealing with loops.

Zip

`zip` returns an iterator that combines multiple iterables into one sequence of tuples. Each tuple contains the elements in that position from all the iterables. For example, printing

```
list(zip(['a', 'b', 'c'], [1, 2, 3]))
```

would output

```
[('a', 1), ('b', 2), ('c', 3)].
```

Like we did for `range()` we need to convert it to a list or iterate through it with a loop to see the elements.

You could unpack each tuple in a `for` loop like this.

```
letters = ['a', 'b', 'c']
nums = [1, 2, 3]

for letter, num in zip(letters, nums):
    print("{}: {}".format(letter, num))
```

In addition to zipping two lists together, you can also unzip a list into tuples using an asterisk.

```
some_list = [('a', 1), ('b', 2), ('c', 3)]
letters, nums = zip(*some_list)
```

This would create the same `letters` and `nums` tuples we saw earlier.

Enumerate

`enumerate` is a built-in function that returns an iterator of tuples containing indices and values of a list. You'll often use this when you want the index along with each element of an iterable in a loop.

enumerate in a loop.

```
letters = ['a', 'b', 'c', 'd', 'e']  
for i, letter in enumerate(letters):  
    print(i, letter)
```

This code would output:

```
0 a  
1 b  
2 c  
3 d  
4 e
```

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