

## 365 DataScience The zip function in Python

### Step 1 Create two lists

```
list_digits = [1, 2, 3, 4]
list_letters = ['a', 'b', 'c', 'd']
```

### Step 2 Apply the 'zip' function

*# Apply the 'zip' function to both lists and store the result in a new variable.*

```
joined = zip(list_digits, list_letters)
```

### Step 3 Display the content and the type of the variable 'joined'

*# The function returns an iterator of tuples and the variable is of type 'zip'.*

```
joined, type(joined)
```

### Step 4 Convert the variable 'joined' into a list and display the result

*# From the output we can conclude that the 'zip' function takes the two lists and creates a new list.*

*# It contains tuples pairing the items with the same indices.*

```
joined_list = list(joined)
joined_list
```

### Step 5 Check what happens when one of the lists is larger

*# Copy the code from above.*

*# This time, redefine the first list such that it now contains one more digit.*

```
list_digits = [1, 2, 3, 4, 5]
list_letters = ['a', 'b', 'c', 'd']
```

*# Zip the two lists*

```
joined = zip(list_digits, list_letters)
```

*# Convert the 'zip' object into a list.*

```
joined_list = list(joined)
```

*# Display the result.*

*# Notice that the function performs the zipping until it reaches the end of the shorter list.*

*# Therefore, the digit 5 is not present in the 'joined\_list' variable.*

```
joined_list
```

### Step 6 Check what happens when zipping more than two lists

*# Copy the code from above.*

*# This time, create a third list.*

```
list_digits = [1, 2, 3, 4]
list_letters = ['a', 'b', 'c', 'd']
```

```
list_punctuation = ['.', '!', '?', ',']

# Zip the three lists
joined = zip(list_digits, list_letters, list_punctuation)

# Convert the 'zip' object into a list.
joined_list = list(joined)

# Display the result.
# The function has joined all items having the same index.
joined_list
```

### Step 7 Unzip values

```
# Using the syntax below, one can also 'unzip' a list using the 'zip' function.
# We use the 'joined_list' variable which stores the items from Step 6 above.
# We can unzip the values in 'joined list' into three variables.
i, j, k = zip(*joined_list)

# The result from the unzipping are printed below.
print(f'i: {i}')
print(f'j: {j}')
print(f'k: {k}')
print(f'Type of i, j and k: {type(i)}')
```

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