

# List Comprehensions and Lambda Functions: Takeaways



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## Syntax

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### WORKING WITH JSON FILES

- Open a JSON data set from a file to Python objects:

```
f = open('filename.json')  
json.load(f)
```

- Convert JSON data from a string to Python objects:

```
json.loads(json_string)
```

- Convert JSON data stored in Python objects to string form:

```
json.dumps(json_obj)
```

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### LIST COMPREHENSIONS

- Converting a for loop to a list comprehension:

- Using a for loop:

```
letters=['a', 'b', 'c', 'd']  
caps=[]  
  
for l in letters:  
    caps.append(l.upper())
```

- Using a List comprehension:

```
caps = [l.upper() for l in letters]
```

- Common list comprehension patterns:

- Transforming a list

```
ints = [25, 14, 13, 84, 43, 6, 77, 56]  
doubled_ints = [i * 2 for i in ints]
```

- Creating test data

```
tenths = [i/10 for i in range(5)]
```

- Reducing a list

```
big_ints = [i for i in ints if i >= 50]
```

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## LAMBDA FUNCTIONS

- Converting a definition to a lambda function:

- Defining a function:

```
def double(x):  
    return x * 2
```

- Defining a lambda function:

```
run_function(function=lambda x: x * 2)
```

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## THE TERNARY OPERATOR

- Create a one-line version of an if/else statement:

```
"val_1 is bigger" if val_1 > val_2 else "val_1 is not bigger"
```

## Concepts

- JSON is a language independent format for storing structured data.
  - In Python, it can be represented by a series of nested lists, dictionaries, strings, and numeric objects.
- A list comprehension provides a concise way of creating lists using a single line of code, where:
  - You start with an iterable object
  - Optionally Transform the items in the iterable object
  - Optionally reduce the items in the iterable object using an if statement
  - Create a new list

- Lambda functions can be defined in a single line, which lets you define a function at the time you need it.
- The ternary operator can be used to replace an if/else statement with a single line.

## Resources

- [Official JSON specification](#)
- [Python Documentation: JSON Module](#)
- [Python Documentation: List Comprehensions](#)
- [Python Documentation: Lambda Functions](#)



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