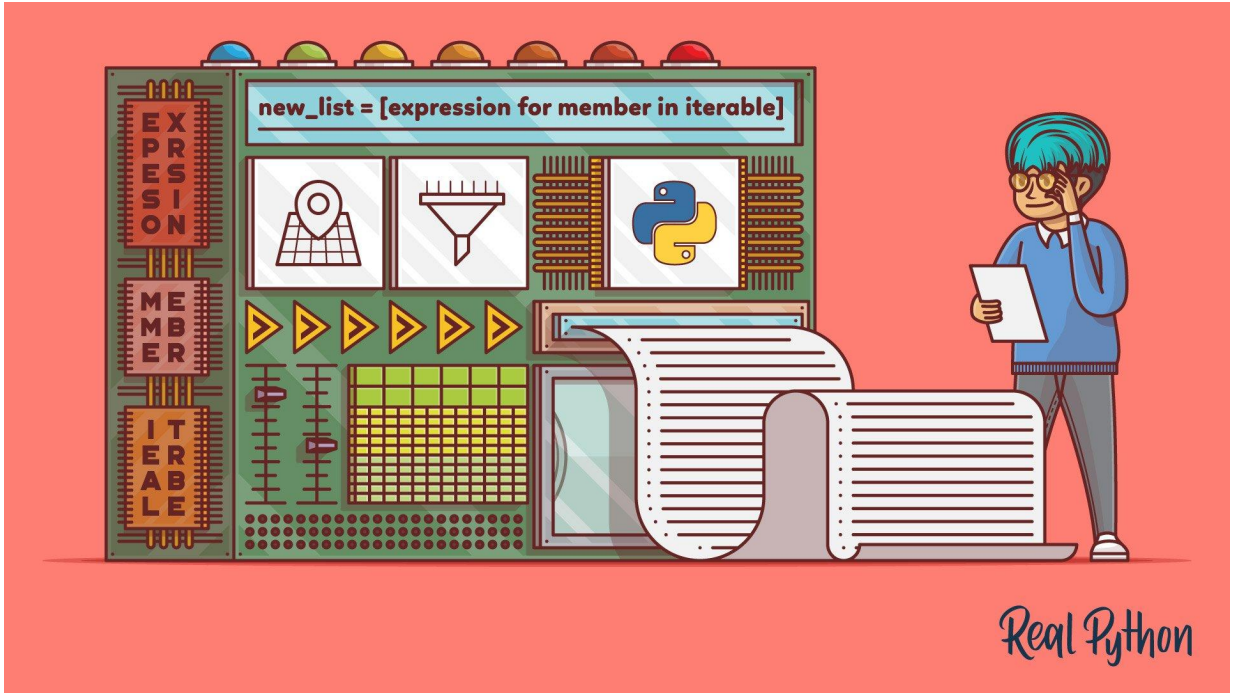
UNDERSTANDING PYTHON LIST COMPREHENSIONS



WHAT YOU WILL LEARN

1. **Rewrite loops and map() calls as a list comprehension in Python**
2. Choose between comprehensions, loops, and map() calls
3. Supercharge your comprehensions with conditional logic
4. Use comprehensions to replace filter()
5. Profile your code to solve performance questions

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HOW TO CREATE LISTS IN PYTHON

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  2. Loop over an iterable or range of element
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- **Using map() Objects**
  - pass in a function and an iterable, and map() will create an object containing the output

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- **Using List Comprehensions**
  - simply define the list and its contents at the same time

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  - simply define the list and its contents at the same time
  - new_list = [expression for member in iterable]

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- A single tool that you can use in many different situations
- Don’t need to remember the proper order of arguments like you would when you call map()
- More declarative than loops, which means they’re easier to read and understand

USING CONDITIONAL LOGIC

```
New_list_1 = [expression for member in iterable]
```

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New_list_1 = [expression for member in iterable]


New_list_2 = [expression for member in iterable (if conditional)]
```

The most common way to add conditional logic to a list comprehension is to add a conditional to the end of the expression

USING CONDITIONAL LOGIC

```
New_list_1 = [expression for member in iterable]

New_list_2 = [expression for member in iterable (if conditional)]

New_list_3 = [expression (if conditional) for member in iterable]
```

Use conditional logic to select from multiple possible output options

USING SET AND DICTIONARY COMPREHENSIONS

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- Set comprehensions make sure the output contains no duplicates
- You can create a set comprehension by using curly braces { } instead of brackets [ ]

USING THE WALRUS OPERATOR

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- Python 3.8 introduced the assignment expression, also known as the ‘walrus operator’
- It allows you to run an expression while simultaneously assigning the output value to a variable.

WHEN NOT TO USE LIST COMPREHENSIONS

- Watch Out for Nested Comprehensions

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- Choose Generators for Large Datasets

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- Choose Generators for Large Datasets
- Profile to Optimize Performance

WHAT YOU HAVE LEARNED

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- Determine when code clarity or performance dictates an alternative approach