

[Python List Comprehension]

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prompt	command	result
Concept	<code>variable = [**result** for element in entity if condition]</code>	**entity could be range(), list, any iterable value...
Multiply each number	<code>lib = [4,8,2,4,0,3] double_nums = [num * 2 for num in lib]</code>	<pre>>>> print(double_nums) [8, 16, 4, 8, 0, 6]</pre>
POW each number	<code>lib = [4,8,2,4,0,3] pow_nums = [pow(x, 2) for x in lib]</code>	<pre>>>> print(pow_nums) [16, 64, 4, 16, 0, 9]</pre>
Reverse a list	<code>one = ['a', 'b', 'c', 'd', 'e'] two = one[::-1] or three = ['a', 'b', 'c', 'd', 'e'][::-1]</code>	<pre>>>> print(two) ['e', 'd', 'c', 'b', 'a'] >>> print(three) ['e', 'd', 'c', 'b', 'a']</pre>
Traverse a list: every second value from indexes 1 to 6	<code>one = ['a', 'b', 'c', 'd', 'e', 'f', 'g'] result = one[2:6:2] or result = [x for x in one[2:6:2]]</code>	<pre>>>> print(result) ['c', 'e']</pre>
Operations with strings	<code>names = ['Bob', 'Mike', 'John'] new_list = ["Hi, " + name for name in names] or new_list = [f 'Hi, {name}' for name in names]</code>	<pre>>>> print(new_list) ['Hi, Bob', 'Hi, Mike', 'Hi, John']</pre>
String call of the first char	<code>names = ['Bob', 'Mike', 'John', 'Jerry'] new_list = [x[0] for x in names]</code>	<pre>>>> print(new_list) ['B', 'M', 'J', 'J']</pre>
Length of a string	<code>names = ['Bob', 'Mike', 'John', 'Jerry'] lengths = [len(x) for x in names]</code>	<pre>>>> print(lengths) [3, 4, 4, 5]</pre>
Unique values only	<code>values = ['h',1,'b','b',4,'1','a',4] option_1 = list({x for x in values}) or option_2 = list(set(values)) or option_3 = [x for x in set(values)] or option_4 = [] [option_4.append(x) for x in values if x not in option_4]</code>	<pre>>>> print(option_1) [1, 'h', 4, 'a', 'b', '1'] >>> print(option_2) [1, 'h', 4, 'a', 'b', '1'] >>> print(option_3) [1, 'h', 4, 'a', 'b', '1'] >>> print(option_4) ['h', 1, 'b', 4, '1', 'a']</pre>
Common values	<code>one = ['a', 1, 'b', 'b', 4, '1'] two = ['h', '1', 1, 'a', 'j', '1'] common = [x for x in one if x in two]</code>	<pre>>>> print(common) ['a', 1, '1']</pre>
Unite two lists	<code>a = [5,1,6] b = [3,2,4] united = [x for y in [a, b] for x in y] or united = [x for x in a + b]</code>	<pre>>>> print(united) [5, 1, 6, 3, 2, 4]</pre>

Create nested list	<pre> one = ['Jack', 'Brit', 'Lucas', 'Ben'] two = [10, 15, 4, 6] nl = [[name, age] for name, age in zip(one, two)] or nl = [[one[i], two[i]] for i in range(len(one))] </pre>	<pre> >>> print(nl) [['Jack', 10], ['Brit', 15], ['Lucas', 4], ['Ben', 6]] </pre>
Nested list sum	<pre> nl = [[4, 8], [15, 2], [23, 42]] sum = [x + y for x, y in nl] or sum = [x + y for (x, y) in nl] </pre>	<pre> >>> print(sum) [12, 31, 65] </pre>
Nested list check	<pre> nl = [[4, 8], [15, 2], [23, 42]] check = [x > y for x, y in nl] or check = [x > y for (x, y) in nl] </pre>	<pre> >>> print(check) [False, True, False] </pre>
Sum integers two lists	<pre> a = [5, 1, 6] b = [3, 2, 4] new = [x + y for x, y in zip(a, b)] </pre>	<pre> >>> print(new) [8, 3, 10] </pre>
Conditional comprehension I, ternery operator	<pre> one = [1, 2, 3, 4, 5, 6, 7] new = [x if x % 2 == 0 else x * 2 for x in one] </pre>	<pre> >>> print(new) [2, 2, 6, 4, 10, 6, 14] </pre>
Conditional comprehension II	<pre> a = [1, 2, 3, 4, 5, 6, 7, 8, 9] b = [x for x in a if x > 5 and x % 2 == 0] </pre>	<pre> >>> print(b) [6, 8] </pre>
Multiple Condition comprehension I	<pre> sent = 'it is I, Kai, Jack, and Brit' c = [x for x in sent.split() if x[0].isupper() and len(x) > 1 if ',' not in x] </pre>	<pre> >>> print(c) ['Brit'] </pre>
Multiple Condition comprehension II	<pre> all_clients = [{'name': 'Jack', 'age': 10, 'balance': 100}, {'name': 'Brit', 'age': 15, 'balance': 200}, {'name': 'Lucas', 'age': 4, 'balance': 300}, {'name': 'Ben', 'age': 6, 'balance': 400}] checked = [x['name'] for x in all_clients if x['balance'] >= 300 or x['age'] > 20] </pre>	<pre> >>> print(checked) ['Lucas', 'Ben'] </pre>
Opposite boolean	<pre> booleans = [True, False, True] result = [not x for x in booleans] </pre>	<pre> >>> print(result) [False, True, False] </pre>
Check for value I	<pre> names = ['Bob', 'Mike', 'John', 'Jerry'] check = [x == 'John' for x in names] </pre>	<pre> >>> print(check) [False, False, True, False] </pre>
Check for value II	<pre> lib = [4, 8, 2, 4] check = [x > 3 for x in lib] </pre>	<pre> >>> print(check) [True, True, False, True] </pre>
Search for value index	<pre> names = ['Bob', 'Mike', 'John', 'Jerry', 'John'] check = [i for i, x in enumerate(names) if x == 'John'] </pre>	<pre> >>> print(check) [2, 4] </pre>