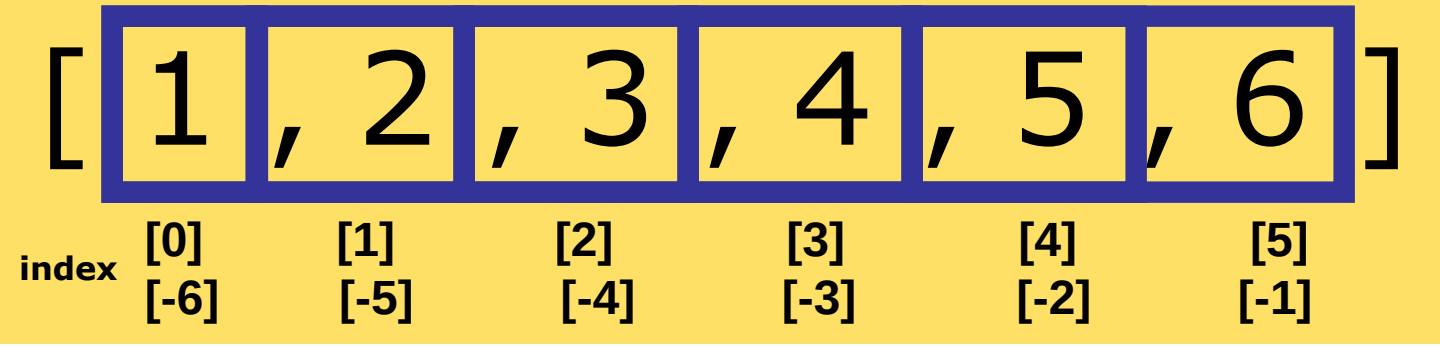
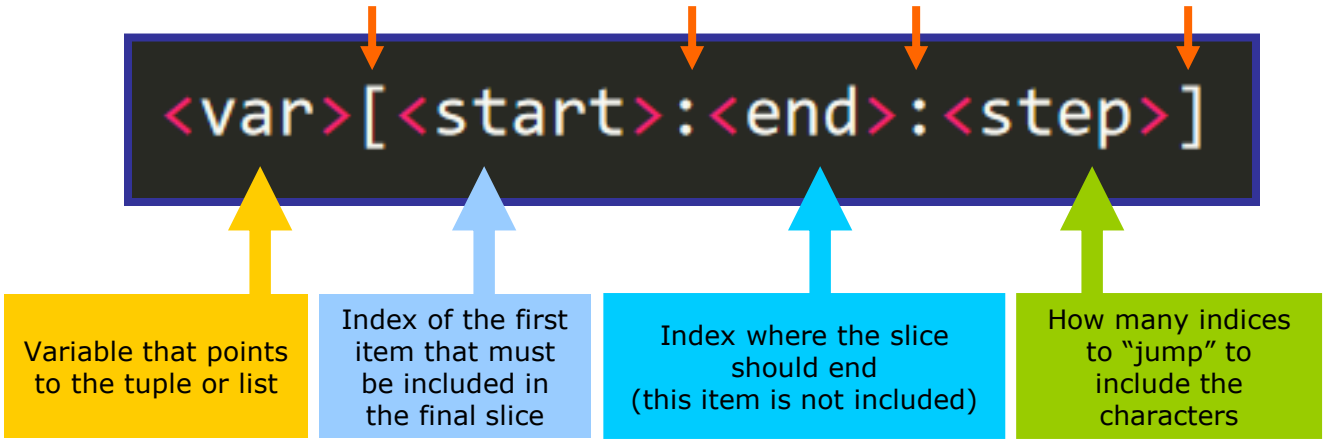
Slicing:
Lists & Tuples

Slicing Lists and Tuples





Key Aspects of Slicing:

- The result will be a "slice" of the list or tuple.
- The same rules apply for lists and tuples.
- If you omit a parameter, the default value is used instead.
    - Start: 0
    - End: Last index (inclusive).
    - Step: 1
- To omit a parameter, you must indicate it by including the symbol :
    - For example: test[::2] when the start and end parameters are omitted. This indicates that 2 is the step parameter.
- You can use negative indices as well. They start with -1 for the last element in the list or tuple, as illustrated in the diagram.

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Examples:

```
>>> test = [[1, 2, 3], ("a", "b", "c"), "Hello", 5.6, ((4, 5, 6), 7)]
>>> test[1:]
[('a', 'b', 'c'), 'Hello', 5.6, ((4, 5, 6), 7)]
>>> test[1:4]
[('a', 'b', 'c'), 'Hello', 5.6]
>>> test[:-1]
[[1, 2, 3], ('a', 'b', 'c'), 'Hello', 5.6]
>>> test[::2]
[[1, 2, 3], 'Hello', ((4, 5, 6), 7)]
>>> test[::-1]
[((4, 5, 6), 7), 5.6, 'Hello', ('a', 'b', 'c'), [1, 2, 3]]
>>> test[5:]
[]
>>> test[:30]
[[1, 2, 3], ('a', 'b', 'c'), 'Hello', 5.6, ((4, 5, 6), 7)]
>>> test[1::2]
[('a', 'b', 'c'), 5.6]
>>> test[::-2]
[((4, 5, 6), 7), 'Hello', [1, 2, 3]]
```

Important:

- When only two parameters are included, they correspond to the start and end parameters. For example: test[2:4] means "start at index 2 and add each item until you reach index 4 (not including this item)".
- When only one parameter is included after two colons (:), it corresponds to the step parameter. For example: test[::2] means "include every item in the list, skipping every other element (step 2)".
- When only one parameter is included, the item at that index is returned, not a slice of the list or tuple. This is called "indexing".
- If an index is out of the range of indices permitted, Python will handle it gracefully by returning an empty string or by using the default value depending on the scenario.