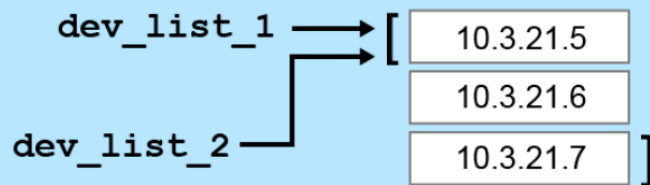


List 'Copy'ing

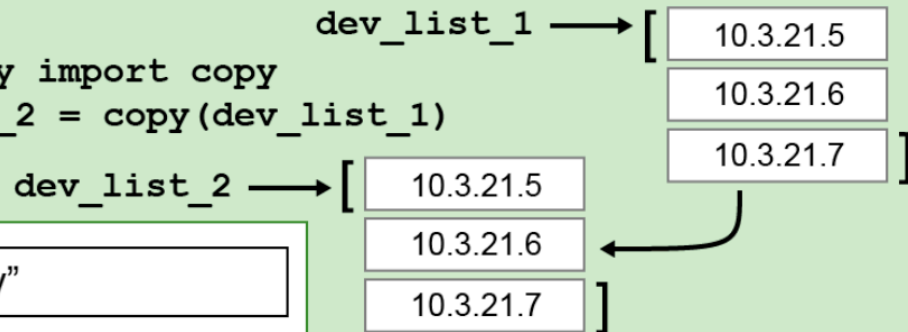
- Assignment

```
dev_list_2 = dev_list_1
```



- Copy

```
from copy import copy  
dev_list_2 = copy(dev_list_1)
```



- "Deep copy"

You will need to understand what is meant by 'assignment' and 'copy' in Python.

Assignment

Recall that everything is an object, and that variables are just names that reference, or point at, that object. When you do an assignment in Python, you are just having the new variable reference the original value. As you can see in the figure, when you say:

```
dev_list_2 = dev_list_1
```

You are having `dev_list_2` point to the same list that is pointed to by `dev_list_1`. If you then change the value of items in the list, add items to the list or remove them, both `dev_list_1` and `dev_list_2` are affected.

Copy (Shallow Copy)

If you want to make a copy of `dev_list_1`, use the 'copy' function available in Python. In order to use the copy function, you must import it from the Python standard library which is done using the `import` statement.

```
from copy import copy
dev_list_2 = copy(dev_list_1)
```

In this example, you are actually copying the entire list, and all items within it. Using the copy function gives `dev_list_2` a completely new copy of `dev_list_1`. After a copy, changes to `dev_list_2` have no effect on `dev_list_1`, and vice versa.

Note that the copy function is actually doing a 'shallow' copy. A shallow copy, in computer programming, means that the only first level of items is copied. If you happened to have a list that had complex data structures such as a list of lists, or a list of dictionaries, a shallow copy does not make a copy of those referenced items—it only copies the first-level items. If you wish to copy all items, no matter how deeply nested are the data structures, you must do a deep copy.

Copy (Deep Copy)

If you need to do a deep copy on your list, use the `deepcopy` function in Python:

```
from copy import deepcopy
complex_list_2 = deepcopy(complex_list_1)
```

The result is that all data from `complex_list_1` is copied to `complex_list_2`.