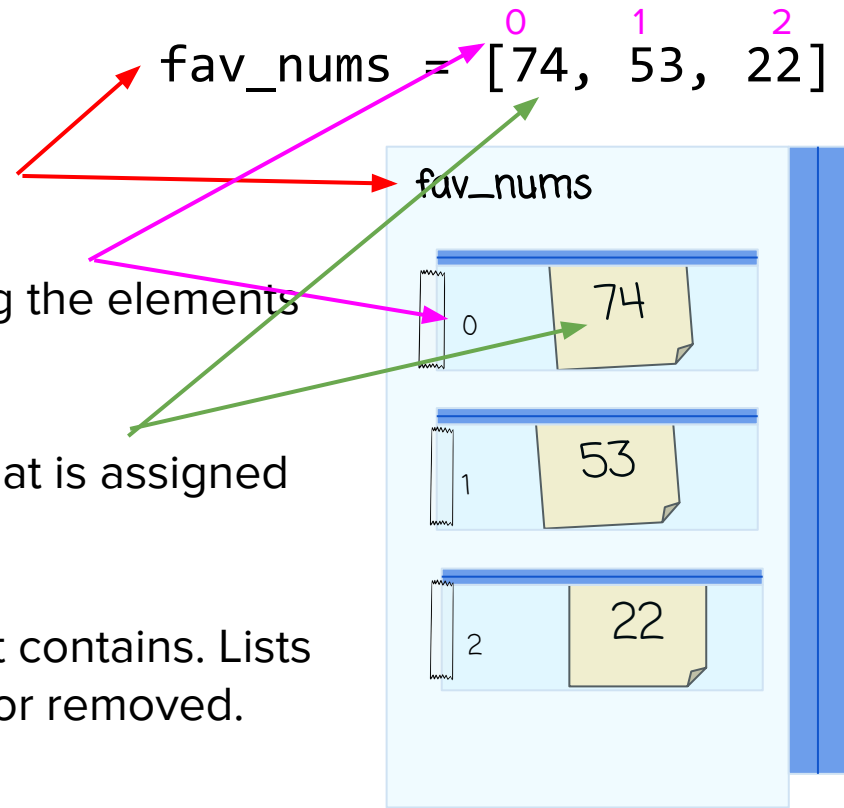


Lists Vocabulary

- A **List** is an ordered collection of elements
- An **index** a common method for referencing the elements in a list or string using numbers
- An **Element** is an individual value in a list that is assigned a unique index
- The **length** of a list is how many elements it contains. Lists can grow or shrink as elements are added or removed.
 $len(fav_nums) = 3$
- Lists allow us to name and work with with large collections of information with few variables. These programs are easier to develop and maintain.

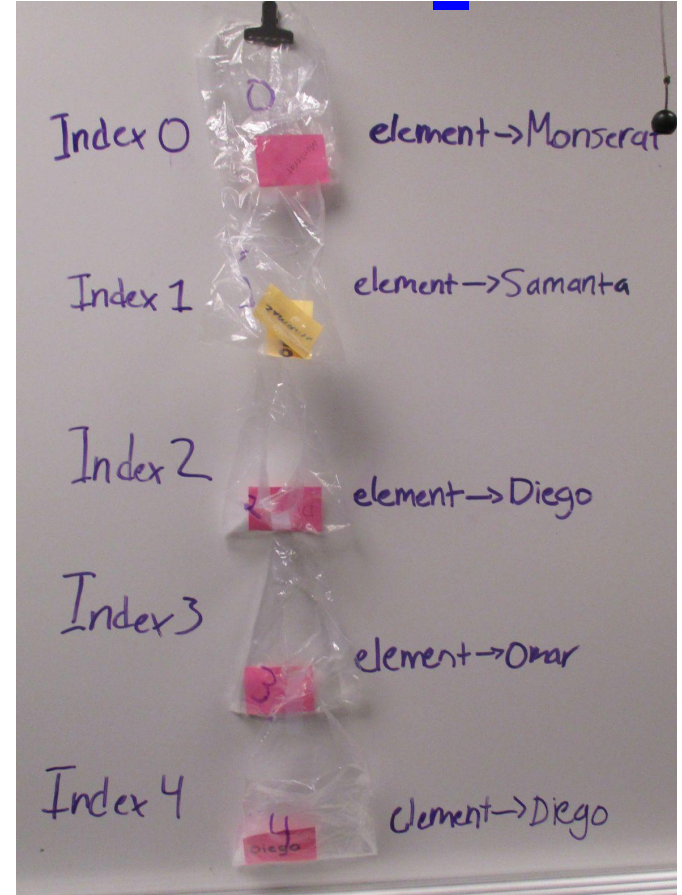


Using Lists

Example of list, index and element

LIST: **student_names**

- Define a list: `alist = []`
- **Access an element** of a list by using `[index]`
 - **alist[1]**
Access an element
 - **alist[3] = alist[2]**
Assign an element from another list element
 - **alist[1] = alist[2] + 3**
Evaluate the expression and then assign



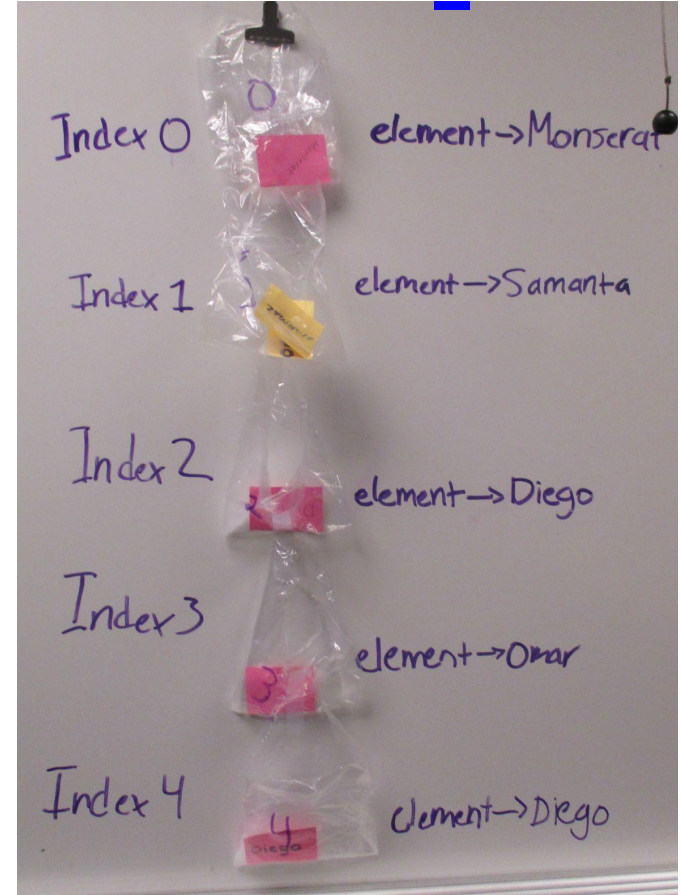
Example of list, index and element

Lists Methods

Call a method: `alist.method()`

- **append** will add an element to the end of a list. The length increases by 1.
- **insert** will add an element at the given index; the parameters are (index, element)
- **pop** will remove an element at the given index. The length decreases by 1. The index of all elements following the popped element are decreased by 1.
- **remove** will look for the value and remove the first instance of it. The length decreases by 1. The index of all elements following the removed element are decreased by 1.
- **len** is a **function** that will return the length of the list: `len(alist)`

LIST: student_names



Lists Methods

Python has a set of built-in methods that you can use on lists/arrays.

Method	Description
<code>append()</code>	Adds an element at the end of the list
<code>clear()</code>	Removes all the elements from the list
<code>copy()</code>	Returns a copy of the list
<code>count()</code>	Returns the number of elements with the specified value
<code>extend()</code>	Add the elements of a list (or any iterable), to the end of the current list
<code>index()</code>	Returns the index of the first element with the specified value
<code>insert()</code>	Adds an element at the specified position (index, element)
<code>pop()</code>	Removes the element at the specified position
<code>remove()</code>	Removes the first item with the specified value
<code>reverse()</code>	Reverses the order of the list
<code>sort()</code>	Sorts the list