

List Methods

Chapter 04b

List Syntax

```
guests = ['Michael', 'Sandy', 'Kelly', 'Joe']
```

```
print(guests[0])
```

```
print(guests[1])
```

```
print(guests[2])
```

```
print(guests[3])
```

#values in list **begins with index 0.**

#index must be integers

#Error if index number exceeds list

LIST Methods

For Lists

- listName.**index**(listItem) – **SEARCH** the list and return the position where it was found.
- listName.**append**(listItem) – **ADDING** an item to the end of the list
- listName.**insert**(index#,listItem) – **INSERTING** an item to a specific position in the list
- listName.**remove**(listItem) – **REMOVING** item from list
- listName.**pop**(listIndex#) – **REMOVING** item from list
- **del** listName[indexNum] – **DELETING** item from list

Accessing an Item in a List by specifying it's position in the list (called the INDEX)

```
animals = ['cat', 'bat', 'rat']
```

```
print(animals[0])
```

OUTPUT: cat

```
print(animals[1])
```

OUTPUT: bat

Accessing an Item in a List by their INDEX

EXAMPLE:

<code>scores = [78, 85, 62, 49, 98]</code>	<code>#scores is the list</code>
<code>print(scores)</code>	<code>#[78, 85, 62, 49, 98]</code>
<code>print(scores[2])</code>	<code>#62</code>
<code>print(scores[1] + scores[2])</code>	<code>#147</code>

You can even access a **list backwards** (Negative Indexes)

```
animals = ['cat', 'bat', 'rat']
```

#**REMINDER:** values in list begins with index 0.

```
print(animals[-1])
```

OUTPUT: rat

#-1 refers to last index in list

```
print(animals[-2])
```

OUTPUT: bat

#-2 refers to 2nd to last index in list

List **ERRORS**

```
animals = ['cat', 'bat', 'rat']
```

#REMINDER: values in list begins with index 0.

```
print(animals[1.0])
```

#ERROR: index must be INTEGER

```
print(animals[9])
```

#ERROR: index cannot exceed range of list

Finding a Value in a List - `index()` Method

- If value is in the list, `index() method` returns position (index number) if where the value was found in the list.
- If value is not in the list, returns Error
- If duplicate values, the index of the first appearance is returned.

```
animals = ['bat', 'cat', 'rat']
```

```
animals.index('bat')      #returns 0
```

```
animals.index('dog')      #returns ValueError
```

Updating Values in a List

```
animals = ['cat', 'bat', 'rat', 'bird']
```

```
animals[1] = 'ant'
```

```
print(animals)
```

#you can also use an index of a list to **update the value** at that index

OUTPUT:

```
['cat', 'ant', 'rat', 'bird']
```

Adding Values to the **end** of a List - **append()** Method

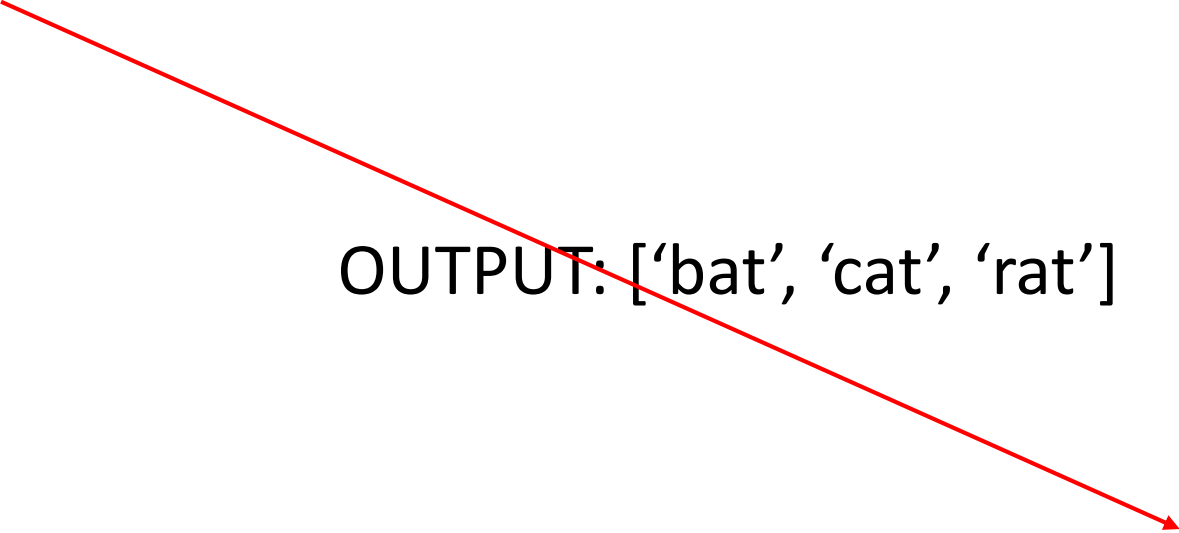
append method adds to **end** of a list.

```
animals = ['bat', 'cat', 'rat']  
print(animals)
```

OUTPUT: ['bat', 'cat', 'rat']

```
animals.append('dog')  
print(animals)
```

OUTPUT: ['bat', 'cat', 'rat', 'dog']



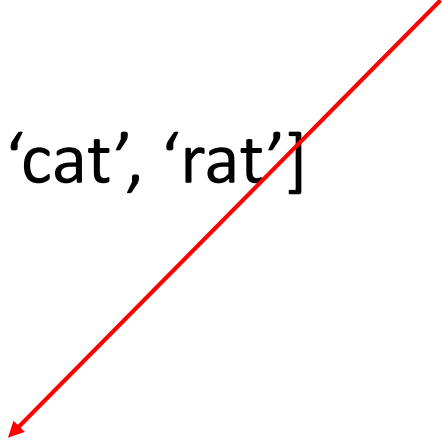
Inserting Values to a specific index in a List - **insert()** Method

insert method adds to **a specific index** in a list.

```
animals = ['bat', 'cat', 'rat']  
print(animals)
```

OUTPUT: ['bat', 'cat', 'rat']

```
animals.insert(1, 'dog')  
print(animals)
```



#Adds to the 2nd item in the list
OUTPUT: ['bat', 'dog', 'cat', 'rat']

REMOVE a Value from a List - `remove()` Method

- If value is in the list, `remove()` method **removes value** from list.
- If value is not in the list, returns **`ValueError`**
- If duplicate values, the index of the first appearance is removed.
- Does not leave a blank item in the list if removed or deleted.

REMOVE a Value from a List - **remove()** Method
**Use when you know the value to be removed.*

```
animals = ['bat', 'cat', 'rat']
```

```
animals.remove('bat')           #removes the specified item
```

```
print(animals)                   #['cat', 'rat']
```

```
animals.remove('dog')           #returns ValueError
```

```
print(animals)
```

REMOVE a specified index - **pop()** Method

**Use when you know position in the list.*

```
animals = ['bat', 'cat', 'rat']
```

```
animals.pop(1)
```

#removes item at the **specified index**

```
print(animals)
```

```
#['bat', 'rat']
```

REMOVE no index specified- **pop()** Method

```
animals = ['bat', 'cat', 'rat']
```

```
animals.pop()
```

#removes last item

```
print(animals)
```

#['bat', 'rat']

Removing Values from a List – **del Statement**

*Use when you know the index to be removed.

```
animals = ['cat', 'bat', 'rat', 'bird']
```

```
['cat', 'bat', 'rat', 'bird']
```

```
del animals[2]
```

```
['cat', 'bat', 'bird']
```

Sorts a Value from a List of Numbers or List of Strings - **sort() Method**

- Sorts uppercase before lowercase.
- If list is combination of numeric and string, returns TypeError

```
animals = ['cat', 'rat', 'bat']
```

```
animals.sort()                #['bat', 'cat', 'rat']
```