



Lists and Simple Loops

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What Are Lists?

A way to group data

Alist = ['ant', 'bee', 'car', 'dog']

Nlist = [5, 7, 9]

Emptylist = []

Mixlist = ['ant', 7, 9, 6]

Len(alist) number of items

Indexing a List

Len(alist) is 4

Refer to an individual entry:

Alist[0] = 'ant'

Alist[1] = 'bee'

Alist[2] = 'car'

Alist[3] = 'dog'

Combining Lists

```
>>>blist = ['egg', 'fox']
```

```
>>>alist + blist
```

```
['ant', 'bee', 'car', 'dog', 'egg', 'fox']
```

```
>>>alist and blist are still the same
```

```
>>>alist.extend (blist)
```

Append one item

```
>>>alist.append ('goo')
```

Simple Loops

For loop – iteration over elements

```
>>>for elem in alist:
```

```
...     print (elem)
```

```
...
```

OR

```
>>>for elem in alist:
```

```
...     print ('Label: ',elem)
```

```
...
```

Building a List

Use one list to build another list

```
>>>clist = []
```

```
>>>for elem in blist:
```

```
...     newstring = 'c:' + elem
```

```
...     clist.append(newstring)
```

```
...
```


Range Function

Produces numbers from 0 to N-1

```
>>>dlist = [ ]
```

```
>>>for index in range (10):
```

```
...     dlist.append (index)
```

```
...
```

List Slices

Slice is a portion of the list

```
>>>alist[1:4]
```

Gives the index numbers of 1, 2, and 3

```
>>>alist[:4]
```

Gives the index numbers of 0, 1, 2, and 3

```
>>>alist[4:]
```

Gives the index numbers starting with 3 and going to end

Another Boolean Comparison

To test if an item in a list

```
>>> 'egg' in alist
```

```
>>> 'foo' in alist
```

List Comprehensions

Uses outer brackets with a list element

```
>>>blist
```

```
>>>elist = ['e:'+elem for elem in blist]
```

```
>>>elist
```

```
>>>flist = [index for index in range(5)]
```

```
>>>flist
```