Lists are collections of items

```
names = ['Christopher', 'Susan']
scores = []
scores.append(98) # Add new item to the end
scores.append(99)
print(names)
print(scores)
print(scores[1]) # Collections are zero-indexed
```

```
# output
['Christopher', 'Susan']
[98, 99]
99
```

Arrays are also collections of items

```
from array import array
scores = array('d')
scores.append(97)
scores.append(98)
print(scores)
print(scores[1])
```

```
# output
array('d', [97.0, 98.0])
98.0
```

What's the difference?

Arrays

Simple types such as numbers

Must all be the same type

Lists

Store anything

Store any type

Common operations

```
names = ['Susan', 'Christopher']
print(len(names)) # Get the number of items
names.insert(0, 'Bill') # Insert before index
print(names)
names.sort()
print(names)
```

```
# output
2
['Bill', 'Susan', 'Christopher']
['Bill', 'Christopher', 'Susan']
```

Retrieving ranges

```
names = ['Susan', 'Christopher', 'Bill']
presenters = names[0:2] # Get the first two items
# Starting index and number of items to retrieve

print(names)
print(presenters)
```

```
# output
['Susan', 'Christopher', 'Bill']
['Susan', 'Christopher']
```

Dictionaries

```
person = {'first': 'Christopher'}
person['last'] = 'Harrison'
print(person)
print(person['first'])
```

```
# output
{'first': 'Christopher', 'last': 'Harrison'}
Christopher
```

What's the difference?

Dictionaries

Key/Value pairs

Storage order not guaranteed

Lists

Zero-based index

Storage order guaranteed