

Lists and Loops

Data type: Lists

Lists

List: a sequence of objects

```
>>> fruit = ["apple", "banana", "grape"]  
>>> numbers = [3, 17, -4, 8.8, 1]  
>>> things = ["shoes", 85, 8.8, "ball"]
```

Guess what these will output:

```
>>> type(fruit)  
>>> type(numbers)  
>>> type(things)
```

Lists

Guess what these will output:

```
>>> type(fruit)
<type 'list'>
```

```
>>> type(numbers)
<type 'list'>
```

```
>>> type(things)
<type 'list'>
```

Lists

Lists have indexes just like strings.

```
>>> fruit  
['apple', 'banana', 'grape']
```

```
>>> print fruit[0]  
'apple'
```

How would you use `type()` to verify the type of each element in the list?

Lists

Make a **list** of the four Beatles.

Use an **index** to print your favorite one's name.

Lists

Make a **list** of the four Beatles.

```
>>> beatles = ['John', 'Paul', 'George', 'Ringo']
```

Use an **index** to print your favorite one's name.

```
>>> print beatles[2]
```

Loops

Loops

Loops are chunks of code that repeat a task over and over again.

★ *Counting* loops repeat a certain number of times.

★ *Conditional* loops keep going until a certain thing happens (or as long as some condition is True).



Loops

Counting loops repeat a certain number of times.

```
>>> for mynum in [1, 2, 3, 4, 5]:  
...     print "Hello", mynum
```

```
Hello 1  
Hello 2  
Hello 3  
Hello 4  
Hello 5
```

The *for* keyword is used to create this kind of loop, so it is usually just called a *for loop*.

Loops

Conditional loops repeat until something happens.

```
>>> count = 0
>>> while (count < 4):
...     print 'The count is:', count
...     count = count + 1
```

The count is: 0

The count is: 1

The count is: 2

The count is: 3

The *while* keyword is used to create this kind of loop, so it is usually just called a *while loop*.

Loops: Practice

Create a list of some of your classmates' names

Loop over the list and say hello to each person.

*Hints: The second line should be indented 4 spaces.
Hit enter until you see the prompt again.*

Loops: Practice

Create a list of some of your classmates' names

```
>>> names = ["Jennifer", "Margaret",  
"Hazel"]
```

Loop over the list and say hello to each person.

```
>>> for person in names:  
...     print "Hello", person
```

Sample Program

```
from random import choice

secret_number = choice(range(1, 20))

while True:
    guess = input("What's the secret number? ")
    if secret_number == guess:
        print "Yay! You got it."
        break
    elif secret_number > guess:
        print "No, that's too low."
    else:
        print "No, that's too high."
```