

# Loop Idioms: What We Do in Loops

Note: Even though these examples are simple,  
the patterns apply to all kinds of loops

# Making “smart” Loops

The trick is “knowing” something about the whole loop when you are stuck writing code that only sees one entry at a time

Set some variables to initial values

**for** **thing** **in** **data**:

Look for something or do something to each entry separately, updating a variable

Look at the variables

# Looping Through a Set

```
print('Before')
for thing in [9, 41, 12, 3, 74, 15] :
    print(thing)
print('After')
```

```
$ python basicloop.py
```

Before

9

41

12

3

74

15

After

# What is the Largest Number?

# What is the Largest Number?

3

# What is the Largest Number?

41

# What is the Largest Number?

12

# What is the Largest Number?

9



# What is the Largest Number?

74

# What is the Largest Number?

15

# What is the Largest Number?

# What is the Largest Number?

3

41

12

9

74

15

# What is the Largest Number?

largest\_so\_far

-1

# What is the Largest Number?

3

largest\_so\_far

3

# What is the Largest Number?

41

largest\_so\_far

41

# What is the Largest Number?

12

largest\_so\_far

41



# What is the Largest Number?

9

largest\_so\_far

41

# What is the Largest Number?

74

largest\_so\_far

74

# What is the Largest Number?

15

74

# What is the Largest Number?

3      41      12      9      74      15

74

# Finding the Largest Value

```
largest_so_far = -1
print('Before', largest_so_far)
for the_num in [9, 41, 12, 3, 74, 15] :
    if the_num > largest_so_far :
        largest_so_far = the_num
    print(largest_so_far, the_num)

print('After', largest_so_far)
```

```
$ python largest.py
```

```
Before -1
```

```
9 9
```

```
41 41
```

```
41 12
```

```
41 3
```

```
74 74
```

```
74 15
```

```
After 74
```

We make a variable that contains the largest value we have seen so far. If the current number we are looking at is larger, it is the new largest value we have seen so far.

# More Loop Idioms



## Acknowledgements / Contributions



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