Part 1: Loop Idioms
Part 2: Functions for Assignment 2

'Round and around and around and around.
– Chubby Checker, 1960, “The Twist”

Python loop forms

<table>
<thead>
<tr>
<th>Loop head</th>
<th>Loop body</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>for</strong> var in something :</td>
<td><strong>while</strong> some condition :</td>
</tr>
<tr>
<td>do something with var</td>
<td>do something</td>
</tr>
<tr>
<td>do something more</td>
<td>do something more</td>
</tr>
<tr>
<td>etc</td>
<td>etc</td>
</tr>
</tbody>
</table>

Accumulate over a range

```python
total = 0
for i in range(1, 11):
    total = total + i
print total
```

Do something to each

```python
threats = [“fee”, “fi”, “fo”, “fum”]
total = 0
for th in threats:
    print th
```

Select

```python
threats = [“fee”, “fi”, “fo”, “fum”]
shortest = “impossibly long”
for th in threats:
    if len(th) < len(shortest):
        shortest = th
print th
```

Filter

```python
threats = [“fee”, “fi”, “fo”, “fum”]
total = 0
for th in threats:
    if len(th) > 2:
        print th
```
Birthday Calculation

Assignment 2:

$ python birthday.py
Please enter today's date as three integers, mm dd yyyy
10 08 2010
Please enter your birthday as two integers, mm dd
03 19
Just 162 days until your next birthday!

Also: rejects improper dates (July 42 in any year, February 29 in 2011)
Says happy birthday if your birthday is today

Let's break it down ...
- Sketch an overall strategy
- Design functions to use as building blocks

First: Sketch an overall strategy ...

$ python birthday.py
Please enter today's date as three integers, mm dd yyyy
10 08 2010
Please enter your birthday as two integers, mm dd
03 19
Just 162 days until your next birthday!

Next: Design functional building blocks ...

$ python birthday.py
Please enter today's date as three integers, mm dd yyyy
10 08 2010
Please enter your birthday as two integers, mm dd
03 19
Just 162 days until your next birthday!

Then: Incrementally build and test