For loop warmup to start now (with a partner)

1) update21

2) cd cs21/inclass/week02/

3) python3 even_loop.py

4) atom even_loop.py

5) modify the program as described in the header, testing after each step
Iteratively modify the code below to create different for loops.

1) Let the user select the number of loop iterations.
2) Instead of 0, 1, 2, 3..., print out even numbers: 0, 2, 4, 6...
3) Let the user choose the multiplier too. So if the user chooses 6, print out 0, 6, 12, 18...

Author: Sara Mathieson
Date: 9/15/17

```python
def main():
    num_iter = int(input("Enter the number of loop iterations: "))
    mult = int(input("Enter the multiplier: "))
    for i in range(num_iter):
        print(i*mult)

main()
```
Outline Sept 15:

• For loop practice and recap last time
• Accumulator pattern
  • len_loop.py program
  • sum_loop.py program

Notes
• Lab 1 due Saturday night
• Office hours TODAY (3-5pm in 260)
• Ninja session TONIGHT (7-9pm in 256)
• Quiz 1: next Friday (9/22), let me know about conflicts
• Practice problems in the practice directory (try on paper first)
Recap last time
Two ways of looping over a list

```python
miles_lst = [4, 10, 7, 0, 2, 1, 0]

# 1) loop over the elements directly
for miles in miles_lst:
    print(miles)

# 2) loop over the indices and use indexing
for i in range(len(miles_lst)):
    print(miles_lst[i])

# the second way might look more complicated,
# but if we ever want to print the index too,
# this way is more convenient
```
Use a for loop to print out information about weekly mileage. Example output:

On day 0 you ran 4 miles
On day 1 you ran 10 miles
On day 2 you ran 7 miles
On day 3 you ran 0 miles
On day 4 you ran 2 miles
On day 5 you ran 1 miles
On day 6 you ran 0 miles

Author: Sara Mathieson
Date: 9/13/17

```python
def main():
    miles_lst = [4, 10, 7, 0, 2, 1, 0]
    num_days = len(miles_lst)
    for i in range(num_days):
        print("On day", i, "you ran", miles_lst[i])

main()
```
# Use a for-loop to pretty print all names in Section 1.
# Author: Sara Mathieson
# Date: 9/12/17

def main():
    for name in name_lst:
        # name = input("What is your name? ")
        x = len(name)
        print((x+4)*'-')
        print('| ' + name + ' |')
        print((x+4)*'-')

main()
Accumulator pattern
Accumulator pattern

• General format:

```python
# set up a variable you want to iteratively modify
variable = <initial value>

# loop over a sequence
for <item> in <seq>:
    # modify variable using item
    variable = variable + item

# print or output the final result
print(variable)
```

• First example: `len_loop.py`
Practice accumulator pattern

• Working with a partner, complete the `sum_loop.py` code

• More accumulator practice (with strings) in the practice directory if you finish early
  • `stretch.py`
  • `star_string.py`
Debugging loops
Loop error #1

```python
def main():
    miles_lst = [4, 10, 7, 0, 2, 1, 0]

    # 1) loop over the elements directly
    for miles in miles_lst:
        print(miles)

    # 2) loop over the indices and use indexing
    for i in range(len(miles_lst)):
        print(miles_lst[i])

main()
```

Traceback (most recent call last):
  File "loop_error.py", line 14, in <module>
    main()
  File "loop_error.py", line 11, in main
    for i in range(miles_lst):
TypeError: 'list' object cannot be interpreted as an integer
Loop error #2

```python
def main():
    miles_lst = [4, 10, 7, 0, 2, 1, 0]

    # 1) loop over the elements directly
    for i in miles_lst:
        print(miles_lst[i])

    # 2) loop over the indices and use indexing
    for i in range(len(miles_lst)):
        print(miles_lst[i])

main()
```

Traceback (most recent call last):
- File "loop_error.py", line 14, in <module>
  main()
- File "loop_error.py", line 8, in main
  print(miles_lst[i])
- IndexError: list index out of range