

# CS21: INTRODUCTION TO COMPUTER SCIENCE

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Swarthmore College

## Outline Sept 13:

- Recap strings + finish `pretty_print.py`
- Sequences and sequence operations
  - Weekly mileage program
- For loops
  - Pretty print all program
- Incremental development and debugging

### Reminders

- Lab 1 due Saturday night
- Office hours 3-5pm Friday (+ when my door is open)
- Quiz 1: next Friday (9/22)
- Let me know about quiz conflicts

# Recap strings

# Workflow so far...

- **up** and **down** arrows for cycling through previous commands
- **Alt-tab** for switching between terminal and atom
- **tab** to autocomplete a file name or command

- ATOM

- **Ctrl-s** for save
- **Ctrl-n** for new file
- **Ctrl-z** undo
- **Ctrl-w** close window

More keyboard shortcuts here



<https://www.cs.swarthmore.edu/courses/CS21Labs/f17/docs/using-atom.html>

- **Python style guide:** <https://www.python.org/dev/peps/pep-0008/>

# String operations

- Length: `len("swarthmore")` **10**
- Empty string: `""` length?
- Concatenation: `"a" + "b"` **"ab"**
- Repetition: `"a"*5` **"aaaaa"**
- Strings are *sequences* of *characters*

# pretty\_print.py (example solution)

```
# Ask the user for their name and print a border around it.  
# Author: Sara Mathieson  
# Date: 9/11/17  
  
def main():  
    name = input("What is your name? ")  
    x = len(name)  
    print((x+4)*'-')  
    print('| ' + name + ' |')  
    print((x+4)*'-')  
  
main()
```

Question: how to print everyone's name?

# Sequences and loops demo

# Sequences (strings, lists, ranges)

- All sequences have a way to get the *length*: `len(<seq>)`
- All sequences support *indexing*: `<seq>[<int>]`
- All sequences have an “*empty*” version:
  - Strings: `“”`
  - Lists: `[]`
  - Ranges: `range(0)`
- *Concatenation* and *repetition*: only for strings and lists



# Types so far

- int
- float
- str
- list
- range

# For loop exercises

# Programs to try with a partner

1) **miles\_loop.py** (run update21), target 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
```

Bonus: ask the user  
For their type of motion  
(i.e. ran, biked, swam, drove...)

2) Pretty print all names!

- \* Copy your old pretty\_print.py to make a new file  
**cp pretty\_print.py pretty\_print\_all.py**
- \* Open the name\_lst.py (run update21)  
**atom name\_lst.py**
- \* Copy the **name\_lst** variable into your program
- \* Add a for loop to your code and indent existing code

# Incremental development and debugging demo