

# CS21: INTRODUCTION TO COMPUTER SCIENCE

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Prof. Mathieson

Fall 2018

Swarthmore College

# Outline Sept 21:

- Continue if/elif/else
- Nesting (lettercount.py)

## Notes

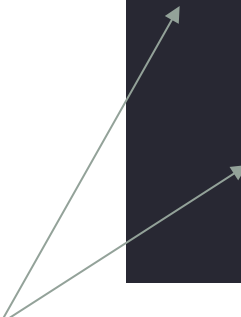
- **Lab 2** due **Saturday** night
- **Office hours today 3-5pm** (room 249)
- **Ninja session tonight 7-9pm** (room 256)

# Research examples

# Computational biology examples

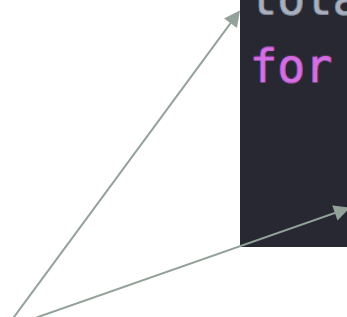
```
# loop over the haplotypes
keep_haps = []
for i in range(N):
    hap = f.readline()

    if anc_der[i] == 'a': # if the haplotype is ancestral
        keep_haps.append(hap)
```



**Nesting**

```
# loop through the files and add haplotypes
total_haps = []
for filename in file_lst:
    positions, keep_haps = parse_mbs_file(filename)
    total_haps = total_haps + keep_haps
```



**Accumulator pattern**

# String formatting

# String formatting

- **%i** – int, use for integers (**%d** can also be used)
- **%f** – float, use **%8.2f** (for example) to make each float be 8 characters total (spaces used as padding on the left), rounded to 2 decimal places
- **%s** – string (same notation applies, but **%8.2s** will pad with spaces as well as truncate to 2 characters)

# String formatting examples

```
>>> string = "code"
>>> z = 35
>>>
>>> print("My %s is %d lines long." % (string, z))
My code is 35 lines long.
>>>
>>> p = 3.141592
>>>
>>> print("Pi is about %f" % p)
Pi is about 3.141592
>>>
>>> print("Pi is about %.2f" % p)
Pi is about 3.14
>>>
>>> print("Pi is about %.4f" % p)
Pi is about 3.1416
>>> num_lst = [234.575742, 14.46574, 8.231235, 19.4239823928398]
[>>> for num in num_lst:
[...     print("lining up numbers: %7.3f" % num)
[...
lining up numbers: 234.576
lining up numbers:  14.466
lining up numbers:   8.231
lining up numbers:  19.424
```