

CS21: INTRODUCTION TO COMPUTER SCIENCE

Prof. Mathieson

Fall 2018

Swarthmore College

Outline Oct 22:

- Mid-semester reminders
- Nested loops example
- Reading and Writing files
 - Handout 3
 - **colleges_file.py**
 - **students_file.py**

Notes

- **Lab 6** due **Saturday** night

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- We are running MOSS which detects similar code
- Computer Science policy is to bring all offenses directly to the College Judiciary Committee (CJC)

Nested Loops & New way of doing for loops

for <item> in <sequence>:
↑
variable name

str
list
range

Short cut

{ for (ch) in (name):

ch = "S"

ch = "w"

ch = "a"

☆ { for (i) in (range(len(name))):
flexible { ch = name[i]

i = 0

i = 1

i = 2

```
def main():
```

```
    section2 = ['Abby', 'Angelina', 'Bilal', 'Chris', 'Chrisbet', 'Christina',  
                'Colin', 'Dean', 'Ella', 'Eudy', 'Eva', 'Ghazi', 'Gwen', 'Iris',  
                'Jordan', 'Josh', 'Juan', 'Julian', 'Juliette', 'Karin',  
                'Karinna', 'Kat', 'Larkin', 'Luke', 'Matt', 'Mirabai', 'Owen',  
                'Rachel', 'Ricky', 'Robert', 'Sam', 'Tiffany', 'Tom', 'Yasmin']
```

```
    section3 = ['Aron', 'Avery', 'Beluchi', 'Bess', 'Camryn', 'Carina',  
                'Charles', 'Charlie', 'Dominic', 'Egor', 'Elizabeth', 'Ellie',  
                'Faith', 'Fefa', 'Francesco', 'Gene', 'Grace', 'Greta', 'Helen',  
                'Ilana', 'Jade', 'Jason', 'Jefferson', 'Kyle', 'Lauren',  
                'Maeve', 'Maggie', 'Ollie', 'Otis', 'Santi', 'Sarah', 'Theo',  
                'Tyler', 'Vivian']
```

```
    # outer for loop goes over the names in a section
```

```
    for name in section2:
```

```
        star = "*" # set up accumulator
```

```
        # inner for loop goes over the characters in each name
```

```
        for ch in name:
```

```
            star += ch + "*"
```

```
        print(star)
```

```
main()
```

Reading Files

name	F/M	params	return
open	F	str, str	"file"
<str>.split	M (string)	none	list
int	F	str, float, int	int
<list>.append	M (list)	anything!	<u>none</u> !
<"file">.close	M ("file")	none	<u>none</u> !
min	F	list	int/float/str
max	F	list	"
sum	F	list	"
len	F	sequence	int
print	F	anything!	none

(TextIO wrapper)

Programs for today

- `inclass/w07/colleges_file.py`
 - data file: `colleges.txt`
- `inclass/w07/students_file.py`
 - data file: `students.txt`