

The Internet and Programming Patterns

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Course Overview

Reminders

- Signup for the quiz or submit a conflict request
- Homework 6 is up
- Practice quiz is up
- zyBooks and post reading are due tomorrow

The Internet

Poll Question: Acronyms

When you request a web page your request is part of what protocol?

- Ⓐ HTML
- Ⓑ DNS
- Ⓒ CSS
- Ⓓ HTTP
- Ⓔ JS
- Ⓕ WWW

Poll Question: Acronyms

When you request a web page your request is part of what protocol?

- Ⓐ **HTML:** Hyper Text Markup Language
- Ⓑ **DNS:** Domain Name Service
- Ⓒ **CSS:** Cascading Style Sheets
- Ⓓ **HTTP:** Hyper Text Transfer Protocol
- Ⓔ **JS:** Javascript
- Ⓕ **WWW:** World Wide Web

Poll Question: The Internet

Which of the following are true?

- Ⓐ Tags in HTML documents typically come in pairs
- Ⓑ HTML documents are hierarchical
- Ⓒ CSS properties consists of attribute: value pairs
- Ⓓ The preferred method of styling web pages is through CSS
- Ⓔ Javascript can be used to modify both the content of a web page and its presentation
- Ⓕ All of the statements are true

Patterns

Counting Pattern

```
1 def count(collection):  
2     counter = 0  
3     for item in collection:  
4         if <item meets condition>:  
5             counter += 1  
6     return counter
```

Computing a Sum/Total

```
7 def sum(collection):  
8     total = 0  
9     for item in collection:  
10         total += item  
11     return total
```

Finding (single thing) in a Collection

```
12 def find_thing(collection):  
13     for thing in collection:  
14         if <thing meets condition>:  
15             return thing
```

```
16 def find_thing(collection):  
17     found = None  
18     for thing in collection:  
19         if <thing meets condition>:  
20             found = thing  
21             break  
22     return found
```

Using Loop else when nothing found

```
23 def find_thing(collection):  
24     for thing in collection:  
25         if <thing meets condition>:  
26             found = thing  
27             break  
28     else:  
29         found = <something>  
30  
31     return found
```

Finding best in collection

```
32 def find_best(collection):  
33     currentbest = ??  
34     for thing in collection:  
35         if <thing is better than current best>:  
36             currentbest = thing  
37     return currentbest
```

- If we're searching over a list and we want to return the largest or smaller number: `currentbest = stufflist[0]`

Finding best in collection

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```

- If we're searching over a list and we want to return the largest or smaller number: `currentbest = stufflist[0]`
- If we're searching over a list of strings and we want to return the longest string: `currentbest = stufflist[0]` or `currentbest = ""`

Finding best in collection

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44 def find_best(collection):  
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46     for thing in collection:  
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```

- If we're searching over a list and we want to return the largest or smaller number: `currentbest = stufflist[0]`
- If we're searching over a list of strings and we want to return the longest string: `currentbest = stufflist[0]` or `currentbest = ""`
- If you know the list contains only non-negative integers:
`currentbest = -1`

Filtering a collection

```
50 def filter(collection):  
51     new_list = []  
52  
53     for thing in collection:  
54         if <thing meets criteria>:  
55             newlist.append(thing)  
56  
57     return new_list
```


Poll Question: Patterns

Given a list of names, make a new list containing only those enrolled in a given course.

```
1 def find_student_enrolled_in_course(student_registrations,
   course):
2     students = []
3     for student in student_registrations:
4         if course in student_registrations[student]:
5             students.append(student)
6     return students
```

- ☐ A Sum
- ☐ B Counter
- ☐ C Finding “best” in collection
- ☐ D Filtering a collection
- ☐ E None of the above

Poll Question: Patterns

Given a list of strings find the longest string.

```
1 def find_longest_string(strings):  
2     longest_string = strings[0]  
3     for string in strings[1:]:  
4         if len(string) > len(longest_string):  
5             longest_string = string  
6     return longest_string
```

- ☐ A Sum
- ☐ B Counter
- ☐ C Finding “best” in collection
- ☐ D Filtering a collection
- ☐ E None of the above

Poll Question: Patterns

Given a list of strings, find the number of strings that contain the substring "tion".

- Ⓐ Sum
- Ⓑ Counter
- Ⓒ Finding “best” in collection
- Ⓓ Filtering a collection
- Ⓔ None of the above

```
1 def count_substring(strings):  
2     counter = 0  
3     for string in strings:  
4         if "tion" in string:  
5             counter += 1  
6     return counter
```

