Lesson 15:

1. Introduction

We are going to create an indexed search.

1. Quiz: Data Structures

We want to make a list that has a keyword index followed by a bunch of urls that related to that keyword.

1. Quiz: Add to Index

# add\_to\_index(index, ‘udacity’, ‘http://udacity.com’)

def add\_to\_index(index, keyword, url):

added = False # could have used return instead

for element in index:

if element[0] == keyword:

element[1].append(url)

added = True

break

if not added:

index.append([keyword, [url]])

1. Quiz: Lookup

def lookup(index, keyword):

for element in index:

if element[0] == keyword:

return element[1]

return []

1. Building the Web Index

Use split to divide up a string for a list.

1. Quiz: Add Page to Index

def add\_page\_to\_index(index, url, content):

words = content.split()

for expression in words:

add\_to\_index(index, expression, url)

1. Quiz: Finishing the Web Crawler

add\_page\_to\_index(index, page, content)

1. Startup

Good luck Peter.

1. The Internet

url 🡪 get\_page 🡪 contents of the page

def get\_page(url):

try:

import urllib

return urllib.urlopen(url).read()

except:

return ‘’

1. Quiz: Networks

Internet is just a network.

A network is a group of entities that can communicate, even though they are not all directly connected. At least 3 entities where the not connected entities can still communicate.

Over 3000 years old. Since most recorded history. Homer talks about the Greek beacons.

1. Smoke Signals

Greek smoke signals, multiple paths to multiple locations.

1. Way to encode and interpret
2. Way to route messages
3. Rules for deciding who gets to use resources
4. Quiz: Latency

Latency = time it takes for a message to get to the source to the destination (seconds or milliseconds.

Quiz: all but adding colors to the smoke to increase numbers per signal. This increases bandwidth.

1. Bandwidth

Bandwidth = amount of information that can be transmitted per unit time. (bits per second or Mbps)

1. Quiz: Bits

1 bit = smallest unit of information.

2 bits for 4 boxes

1. Buckets of Bits

So, once we can send bits, we can send anything we want.

1. Quiz: What Is Your Bandwidth?

13 Mbps

1. Traceroute

Fun, known about this for a while.

1. Quiz: Traveling Data

43,000/300,000 = 1/7

1. Making a Network
2. Protocols

Client (web browser) and server (udacity.com)

GET request from server

1. Conclusion

Finished Unit 4